OIPE IAP72
MAY 21 2005
PATENT & TRADEMARK OFFICE

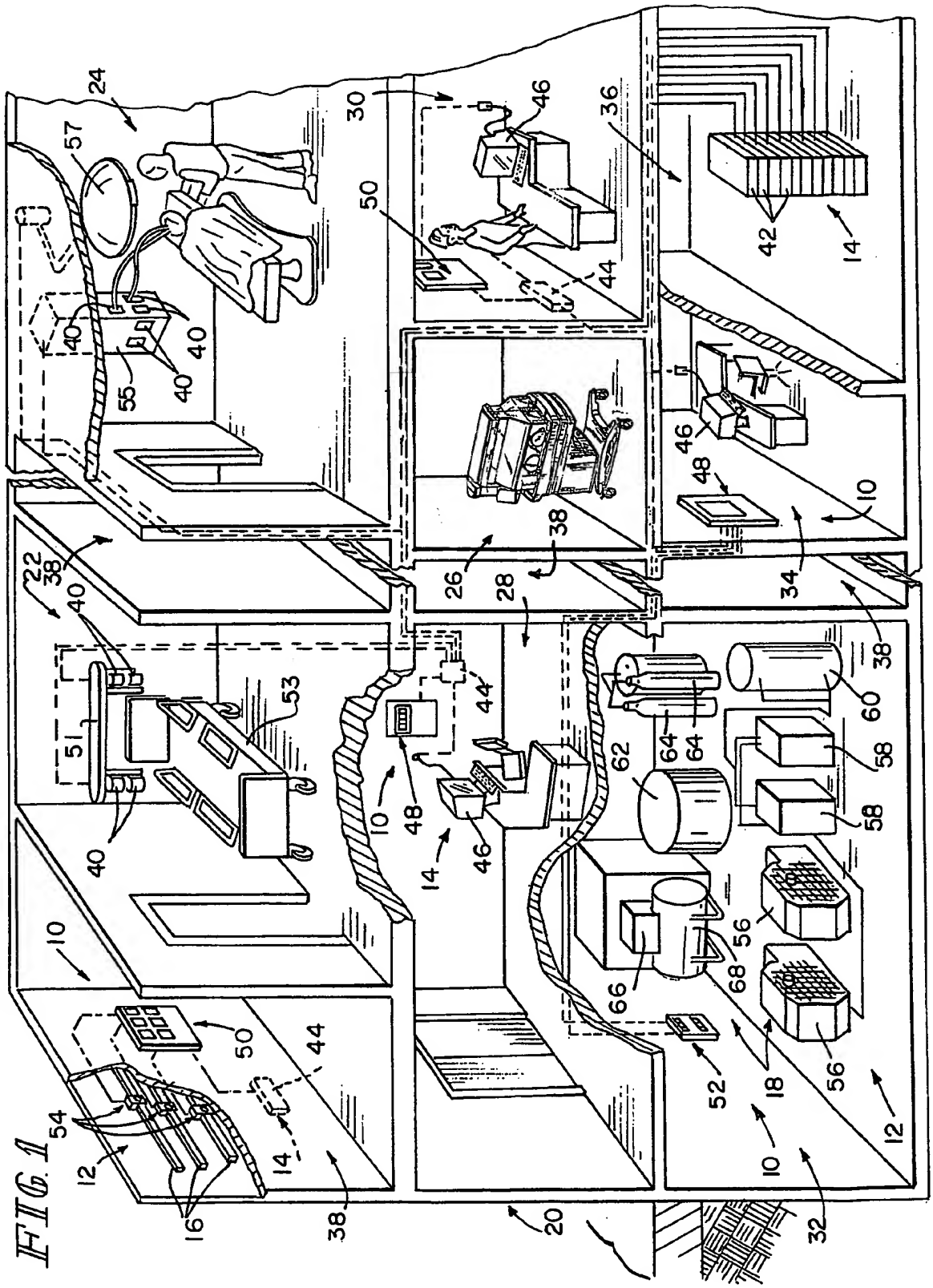


FIG. 1

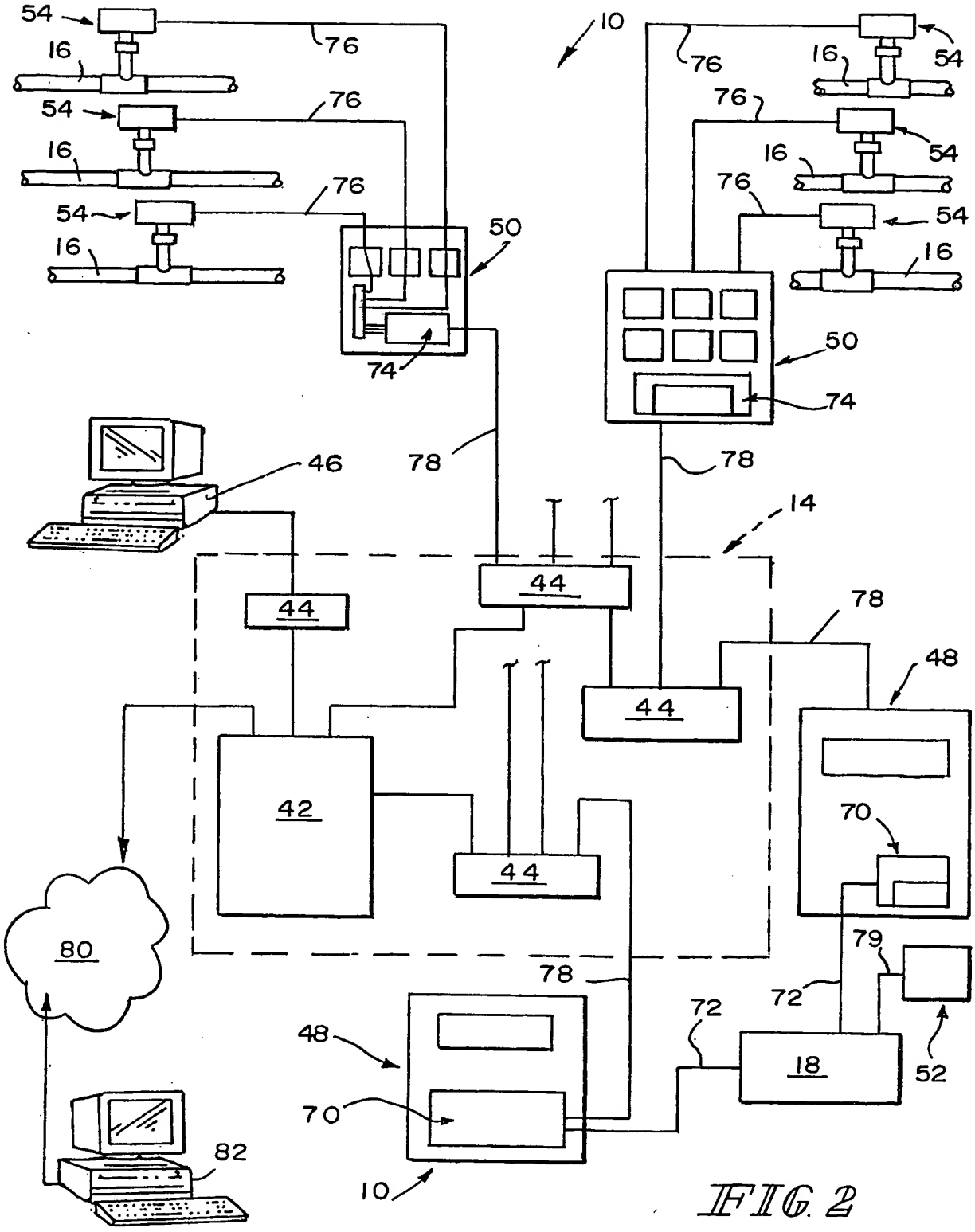


FIG 2

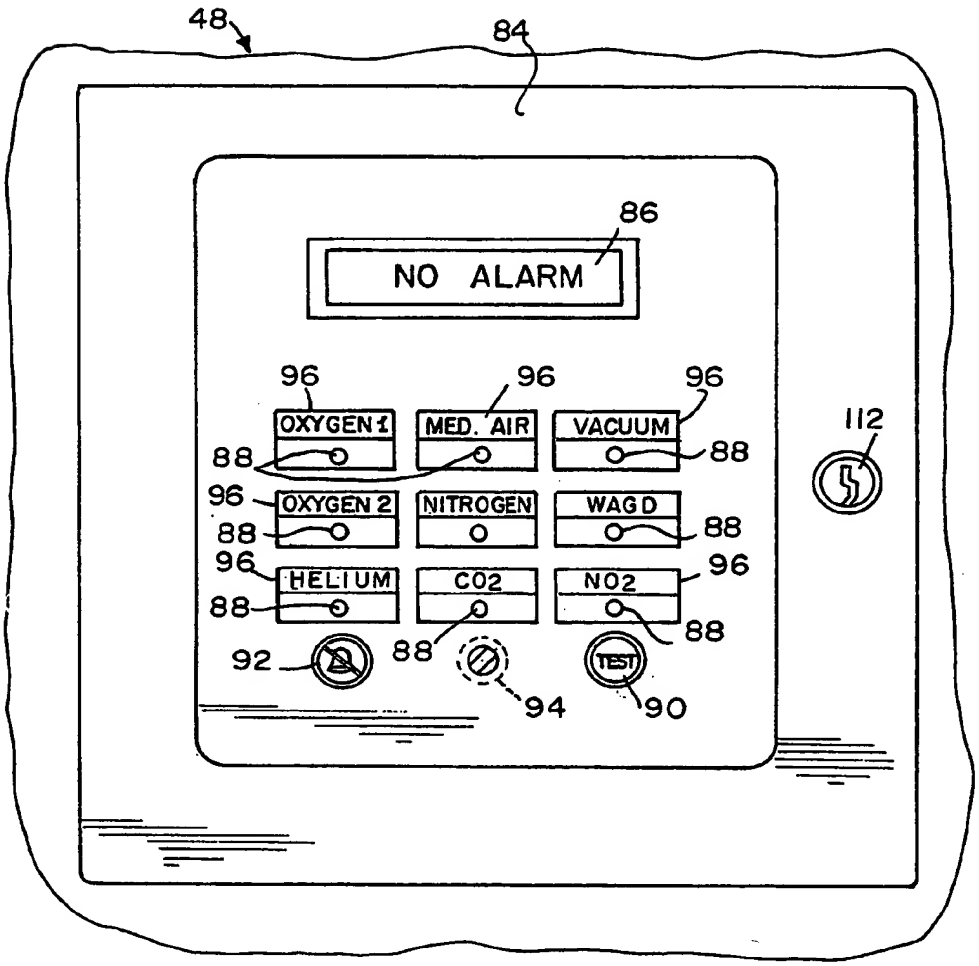

48
84
86
NO ALARM
96
96
96
OXYGEN 1
MED. AIR
VACUUM
88
88
112
96
OXYGEN 2
NITROGEN
WAG D
88
88
96
HELIUM
CO2
NO2
96
88
88
88
92
88
94
TEST
90

FIG. 3

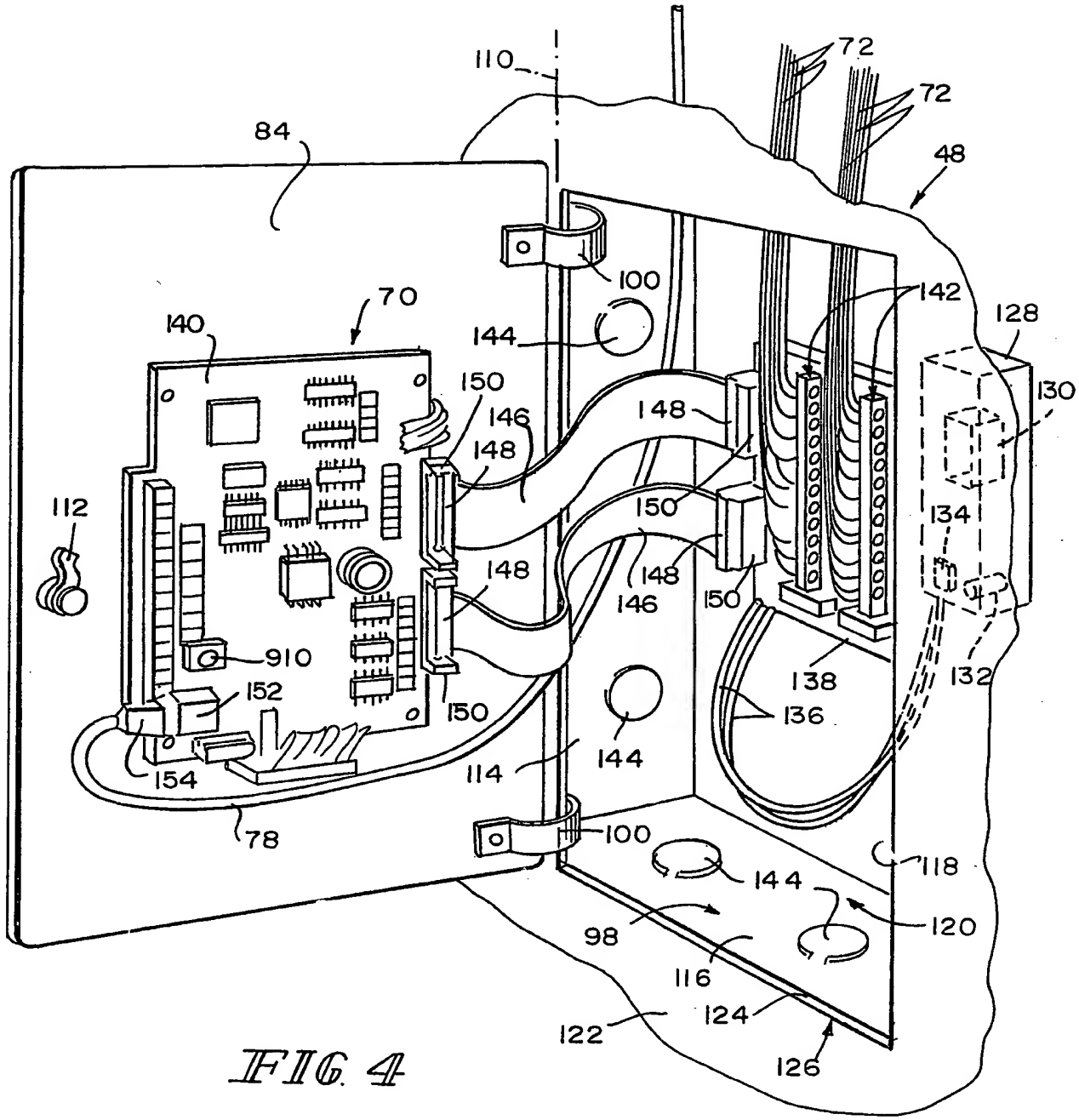

110
72
72
84
48
100
70
140
144
142
128
150
146
148
130
148
112
150
134
148
148
146
150
910
138
132
152
136
150
144
154
114
78
100
118
144
120
98
116
124
122
126

FIG. 4

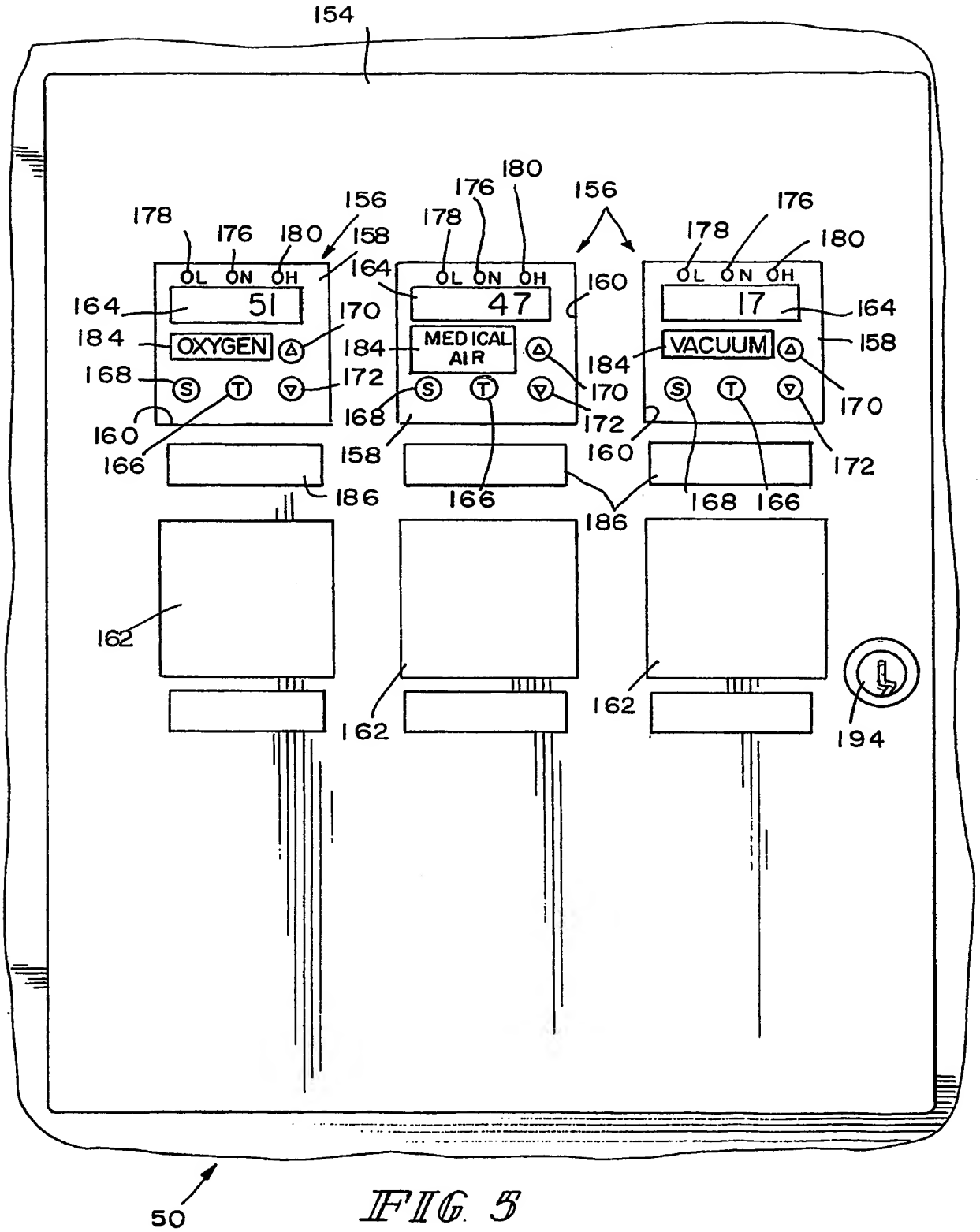

154
156
158
160
162
164
166
168
170
172
176
178
180
184
186
194
OL ON OH
51
OXYGEN
47
MEDICAL AIR
17
VACUUM
50

FIG. 5

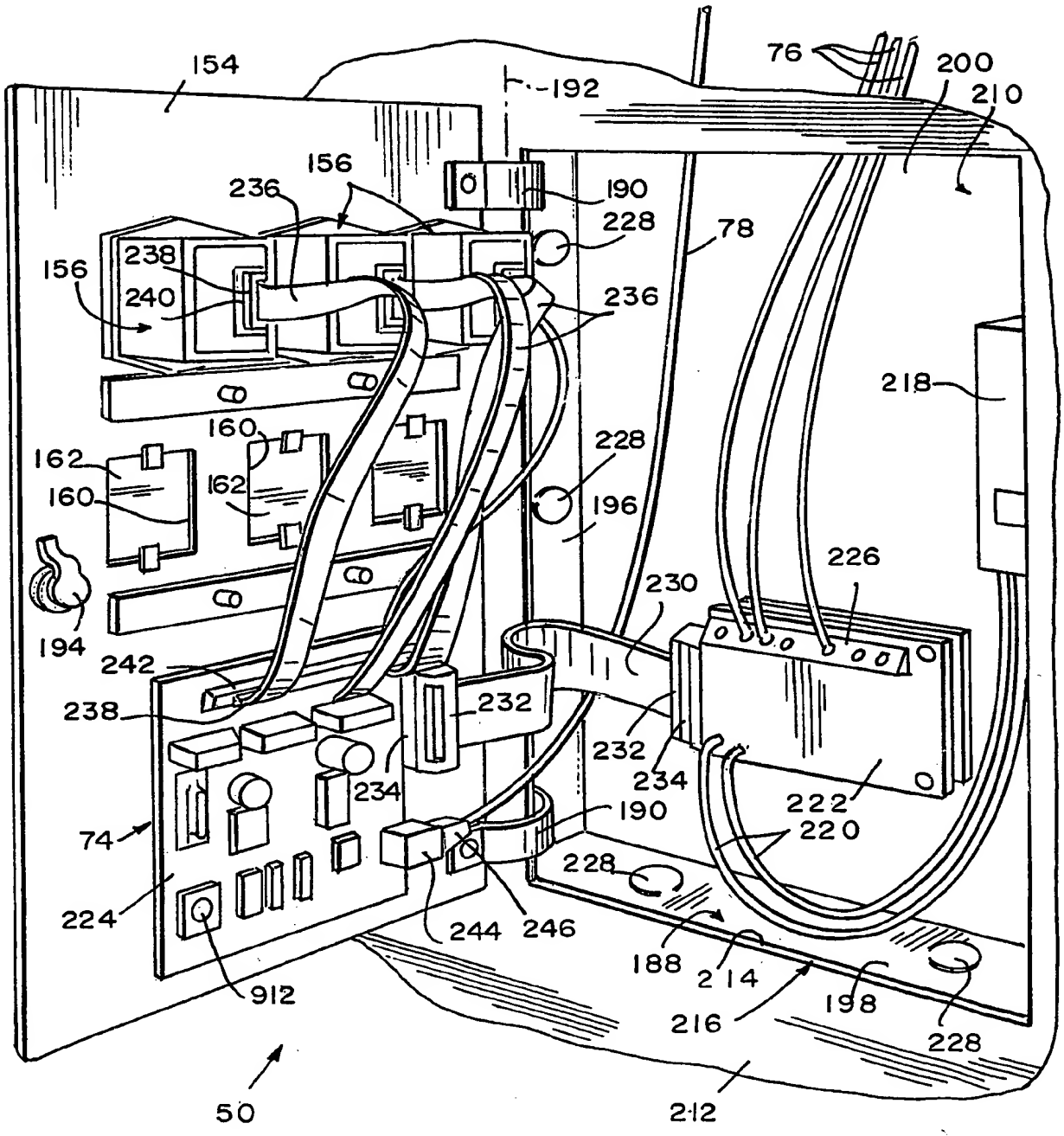

154
192
76
200
210
156
236
190
228
78
238
156
240
236
218
160
228
162
162
160
196
226
230
194
242
238
232
232
234
234
222
190
74
220
228
224
244
246
188
214
198
216
228
912
50
212

FIG. 6

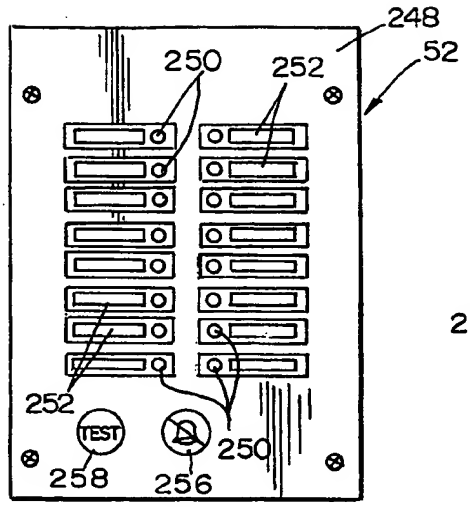


FIG. 7

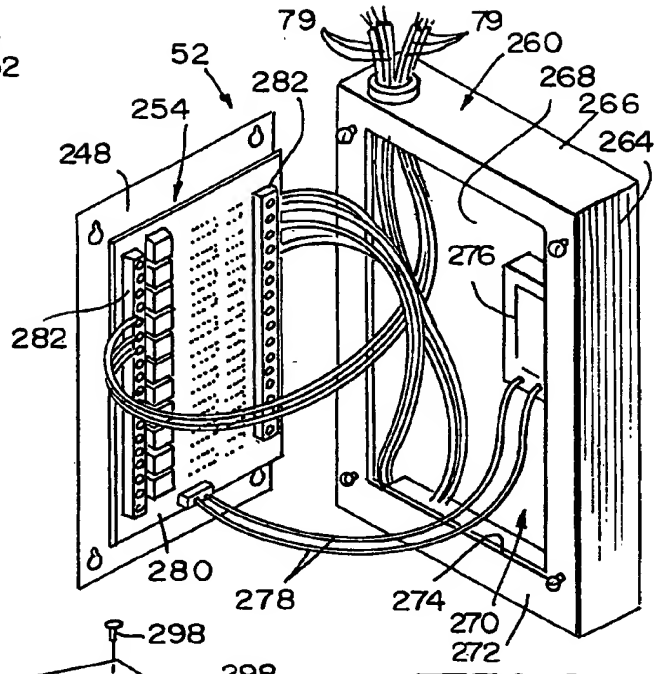


FIG. 8

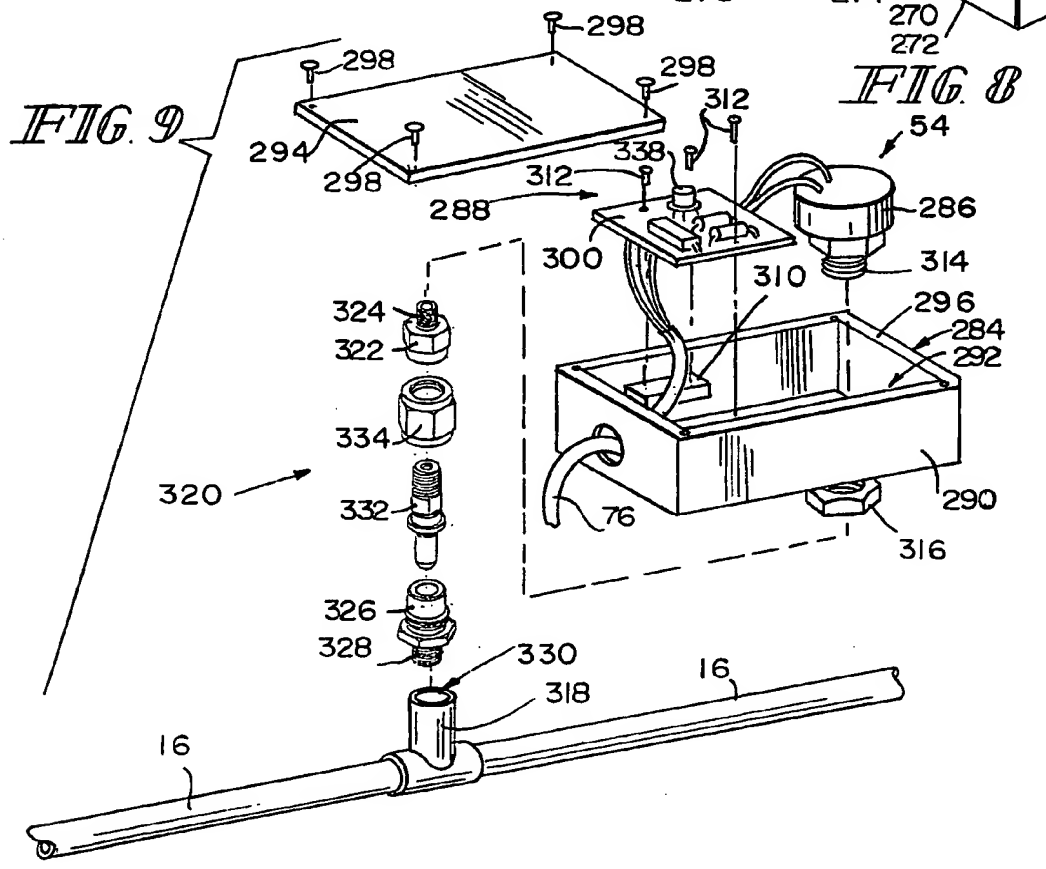


FIG. 9

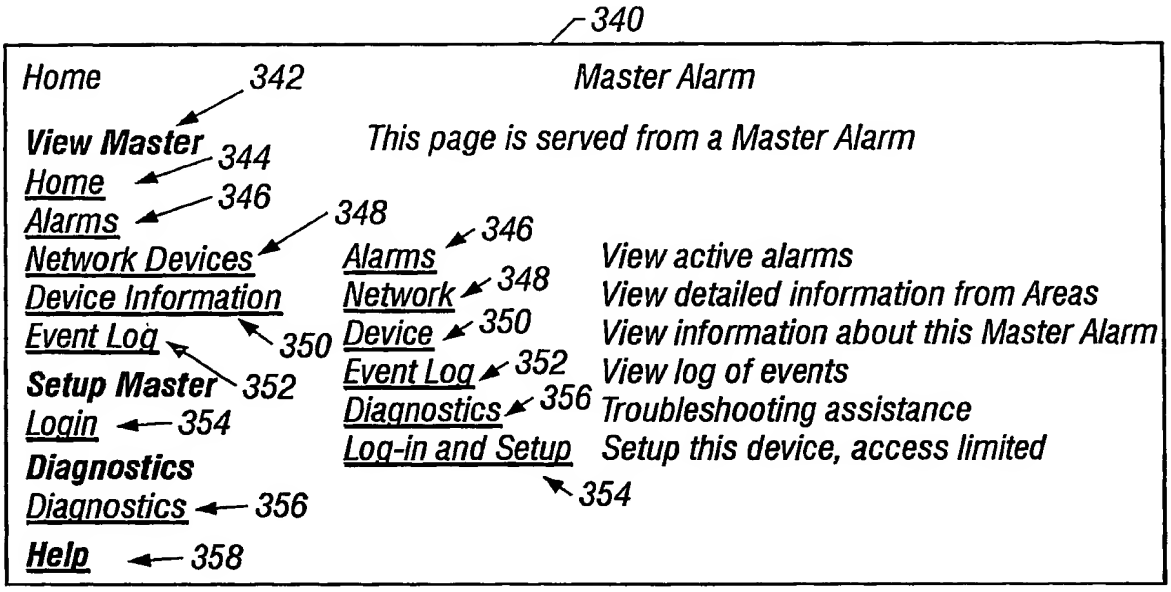

340
Home
342
Master Alarm
View Master
This page is served from a Master Alarm
344
Home
346
Alarms
348
Network Devices
Device Information
Event Log
350
Setup Master
352
Login
354
Diagnostics
Diagnostics
356
Help
358
346
Alarms
View active alarms
348
Network
View detailed information from Areas
350
Device
View information about this Master Alarm
352
Event Log
View log of events
356
Diagnostics
Troubleshooting assistance
Log-in and Setup
Setup this device, access limited
354

FIG. 10

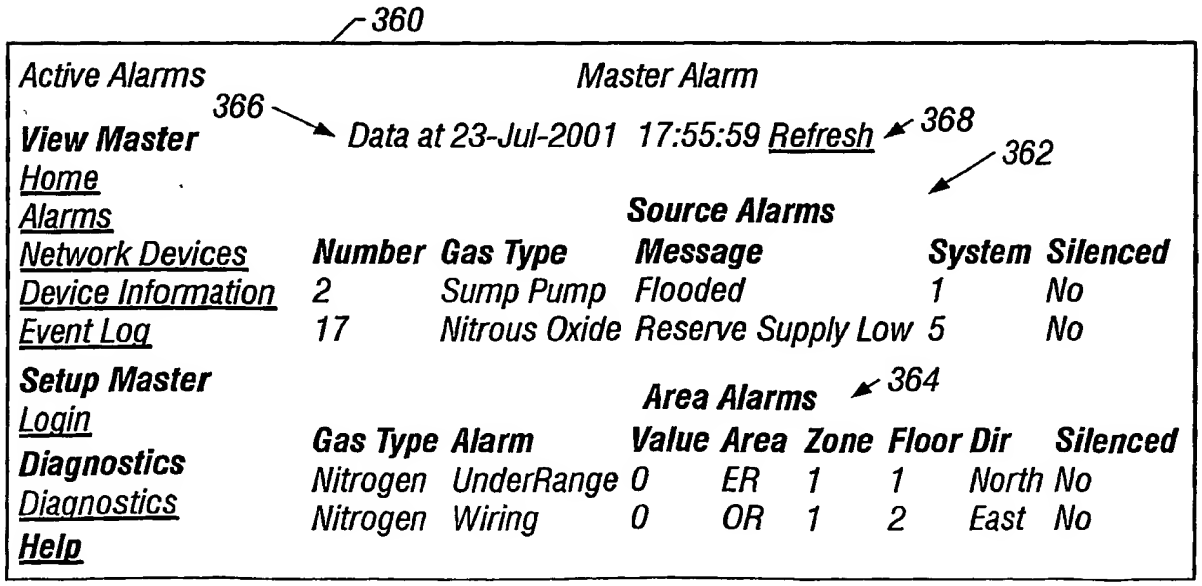
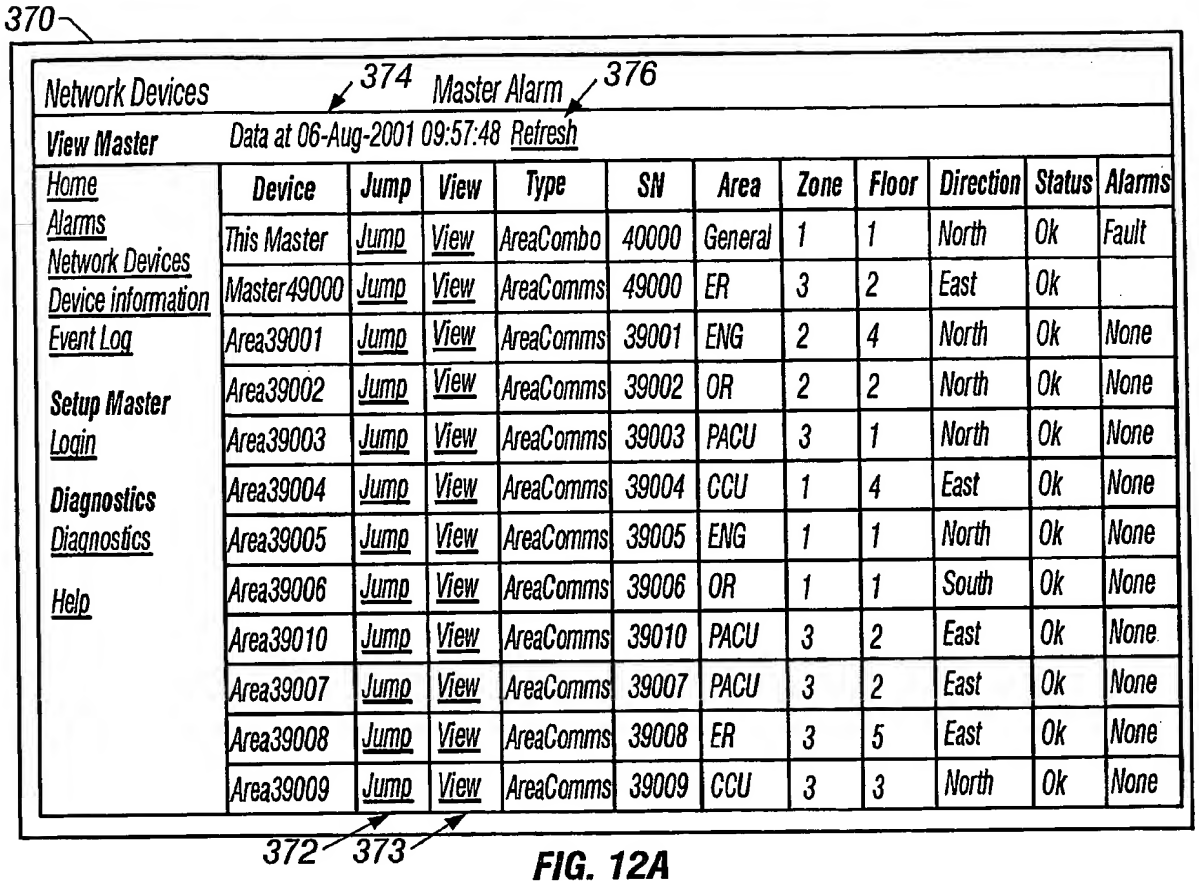

360
Active Alarms
Master Alarm
366
Data at 23-Jul-2001 17:55:59 Refresh
368
362
View Master
Home
Alarms
Network Devices
Device Information
Event Log
Setup Master
Login
Diagnostics
Diagnostics
Help
Source Alarms
Number Gas Type Message System Silenced
2 Sump Pump Flooded 1 No
17 Nitrous Oxide Reserve Supply Low 5 No
364
Area Alarms
Gas Type Alarm Value Area Zone Floor Dir Silenced
Nitrogen UnderRange 0 ER 1 1 North No
Nitrogen Wiring 0 OR 1 2 East No

FIG. 11



Device	Jump	View	Type	SN	Area	Zone	Floor	Direction	Status	Alarms
This Master	Jump	View	AreaCombo	40000	General	1	1	North	Ok	Fault
Master49000	Jump	View	AreaComms	49000	ER	3	2	East	Ok	
Area39001	Jump	View	AreaComms	39001	ENG	2	4	North	Ok	None
Area39002	Jump	View	AreaComms	39002	OR	2	2	North	Ok	None
Area39003	Jump	View	AreaComms	39003	PACU	3	1	North	Ok	None
Area39004	Jump	View	AreaComms	39004	CCU	1	4	East	Ok	None
Area39005	Jump	View	AreaComms	39005	ENG	1	1	North	Ok	None
Area39006	Jump	View	AreaComms	39006	OR	1	1	South	Ok	None
Area39010	Jump	View	AreaComms	39010	PACU	3	2	East	Ok	None
Area39007	Jump	View	AreaComms	39007	PACU	3	2	East	Ok	None
Area39008	Jump	View	AreaComms	39008	ER	3	5	East	Ok	None
Area39009	Jump	View	AreaComms	39009	CCU	3	3	North	Ok	None

FIG. 12A

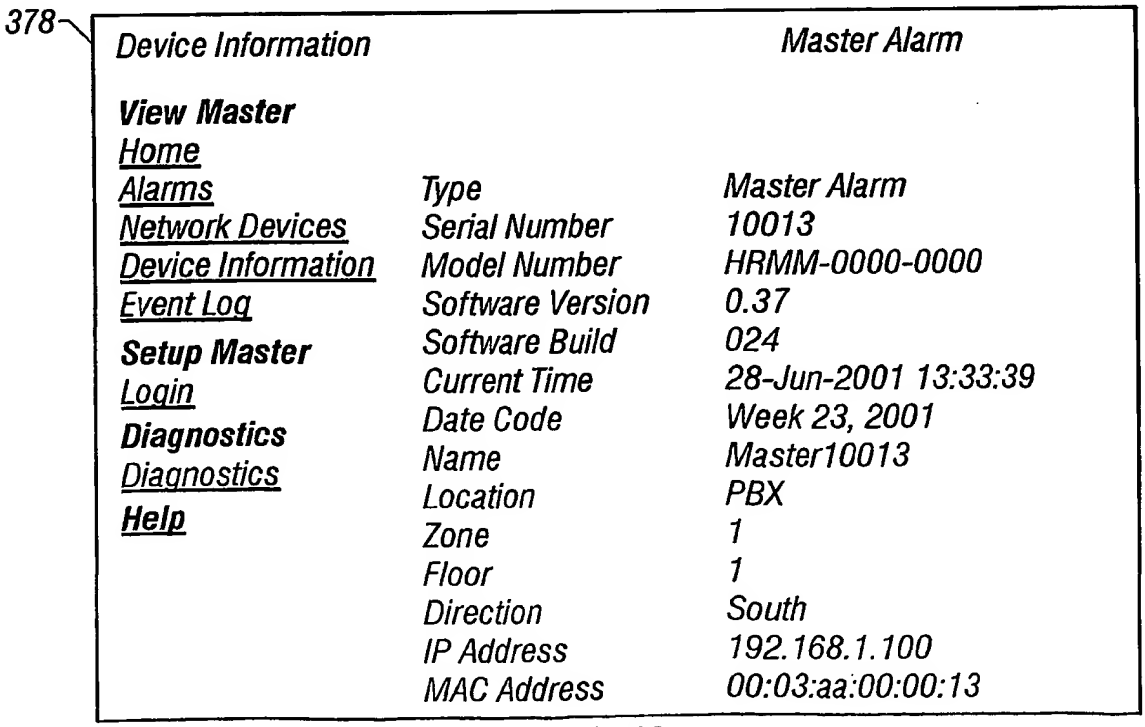


FIG. 13

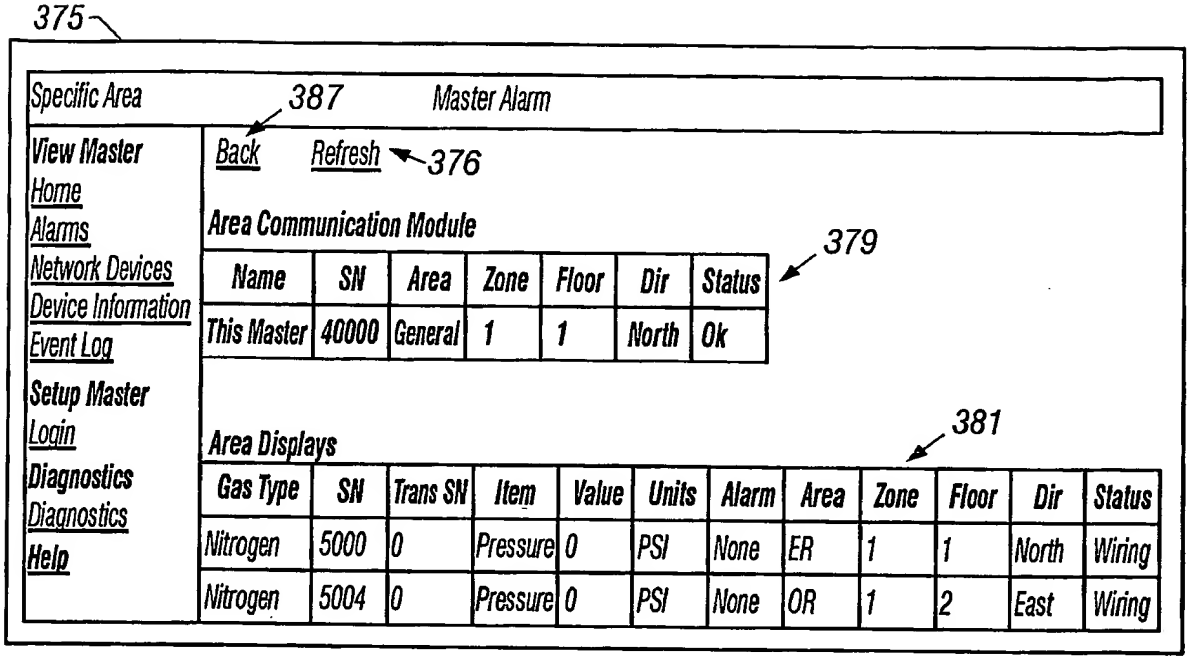


FIG. 12B

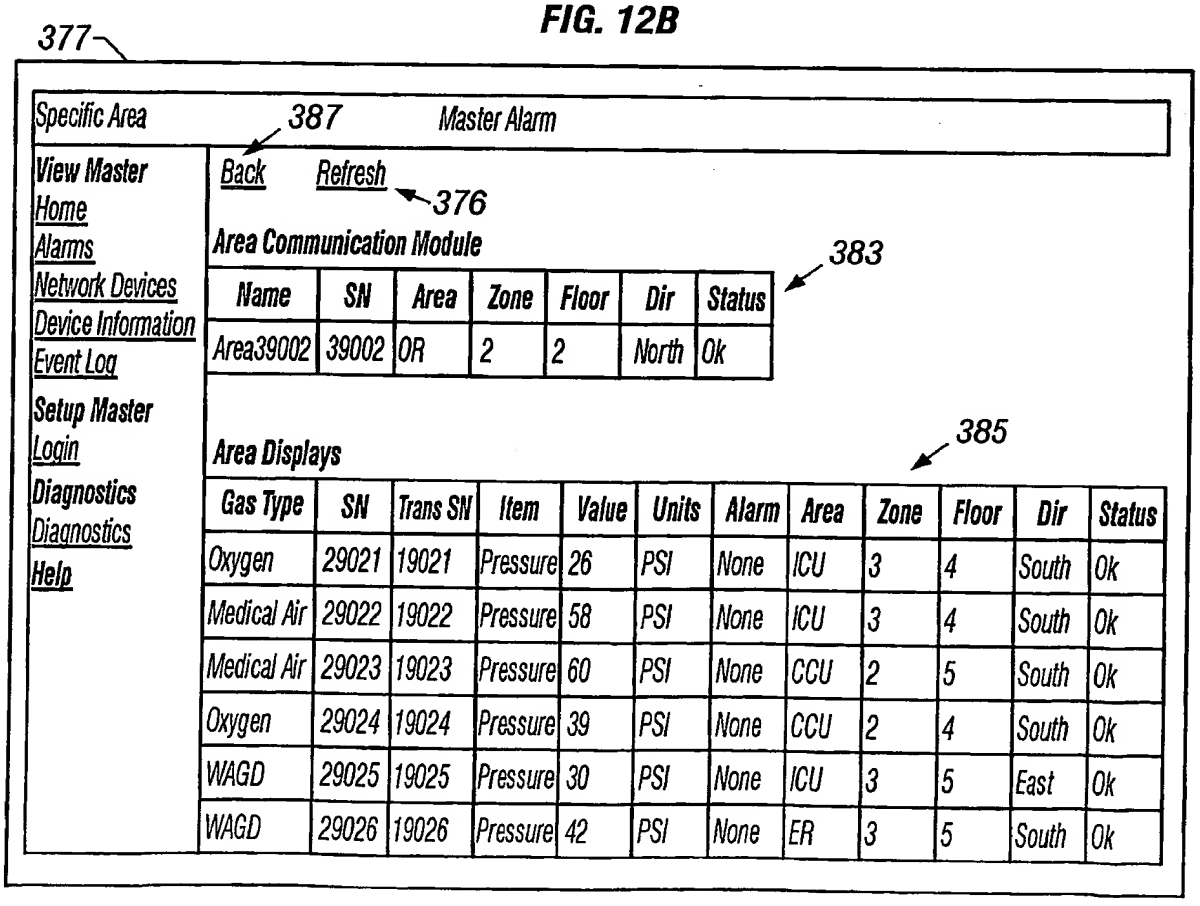


FIG. 12C

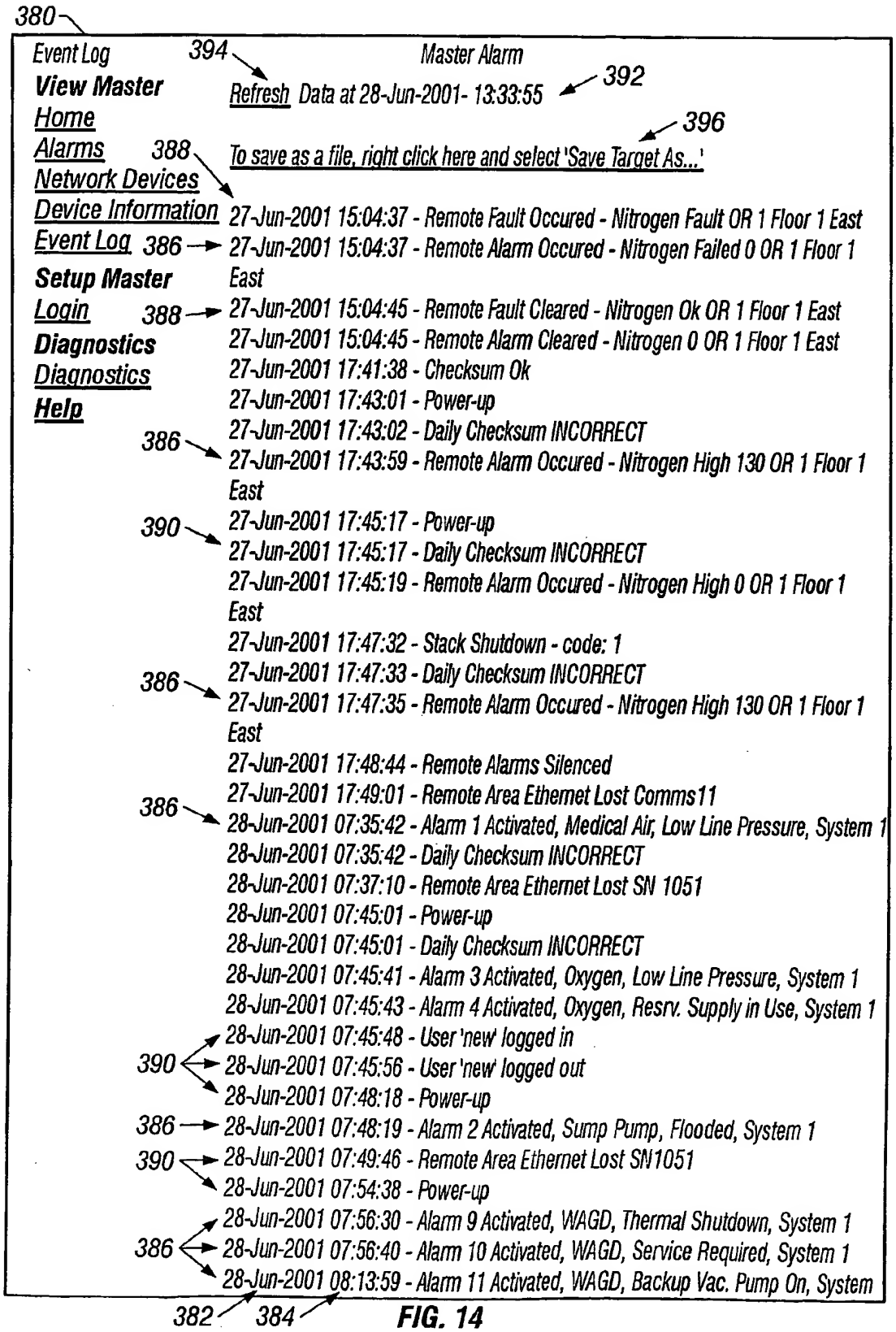

380
Event Log
View Master
Home
Alarms
Network Devices
Device Information
Event Log
Setup Master
Login
Diagnostics
Diagnostics
Help
394
Master Alarm
Refresh Data at 28-Jun-2001- 13:33:55
392
396
To save as a file, right click here and select 'Save Target As...'
388
386
388
386
390
386
390
386
390
386
382
384
27-Jun-2001 15:04:37 - Remote Fault Occured - Nitrogen Fault OR 1 Floor 1 East
27-Jun-2001 15:04:37 - Remote Alarm Occured - Nitrogen Failed 0 OR 1 Floor 1 East
27-Jun-2001 15:04:45 - Remote Fault Cleared - Nitrogen Ok OR 1 Floor 1 East
27-Jun-2001 15:04:45 - Remote Alarm Cleared - Nitrogen 0 OR 1 Floor 1 East
27-Jun-2001 17:41:38 - Checksum Ok
27-Jun-2001 17:43:01 - Power-up
27-Jun-2001 17:43:02 - Daily Checksum INCORRECT
27-Jun-2001 17:43:59 - Remote Alarm Occured - Nitrogen High 130 OR 1 Floor 1 East
27-Jun-2001 17:45:17 - Power-up
27-Jun-2001 17:45:17 - Daily Checksum INCORRECT
27-Jun-2001 17:45:19 - Remote Alarm Occured - Nitrogen High 0 OR 1 Floor 1 East
27-Jun-2001 17:47:32 - Stack Shutdown - code: 1
27-Jun-2001 17:47:33 - Daily Checksum INCORRECT
27-Jun-2001 17:47:35 - Remote Alarm Occured - Nitrogen High 130 OR 1 Floor 1 East
27-Jun-2001 17:48:44 - Remote Alarms Silenced
27-Jun-2001 17:49:01 - Remote Area Ethernet Lost Comms11
28-Jun-2001 07:35:42 - Alarm 1 Activated, Medical Air, Low Line Pressure, System 1
28-Jun-2001 07:35:42 - Daily Checksum INCORRECT
28-Jun-2001 07:37:10 - Remote Area Ethernet Lost SN 1051
28-Jun-2001 07:45:01 - Power-up
28-Jun-2001 07:45:01 - Daily Checksum INCORRECT
28-Jun-2001 07:45:41 - Alarm 3 Activated, Oxygen, Low Line Pressure, System 1
28-Jun-2001 07:45:43 - Alarm 4 Activated, Oxygen, Resrv. Supply in Use, System 1
28-Jun-2001 07:45:48 - User 'new' logged in
28-Jun-2001 07:45:56 - User 'new' logged out
28-Jun-2001 07:48:18 - Power-up
28-Jun-2001 07:48:19 - Alarm 2 Activated, Sump Pump, Flooded, System 1
28-Jun-2001 07:49:46 - Remote Area Ethernet Lost SN1051
28-Jun-2001 07:54:38 - Power-up
28-Jun-2001 07:56:30 - Alarm 9 Activated, WAGD, Thermal Shutdown, System 1
28-Jun-2001 07:56:40 - Alarm 10 Activated, WAGD, Service Required, System 1
28-Jun-2001 08:13:59 - Alarm 11 Activated, WAGD, Backup Vac. Pump On, System

FIG. 14

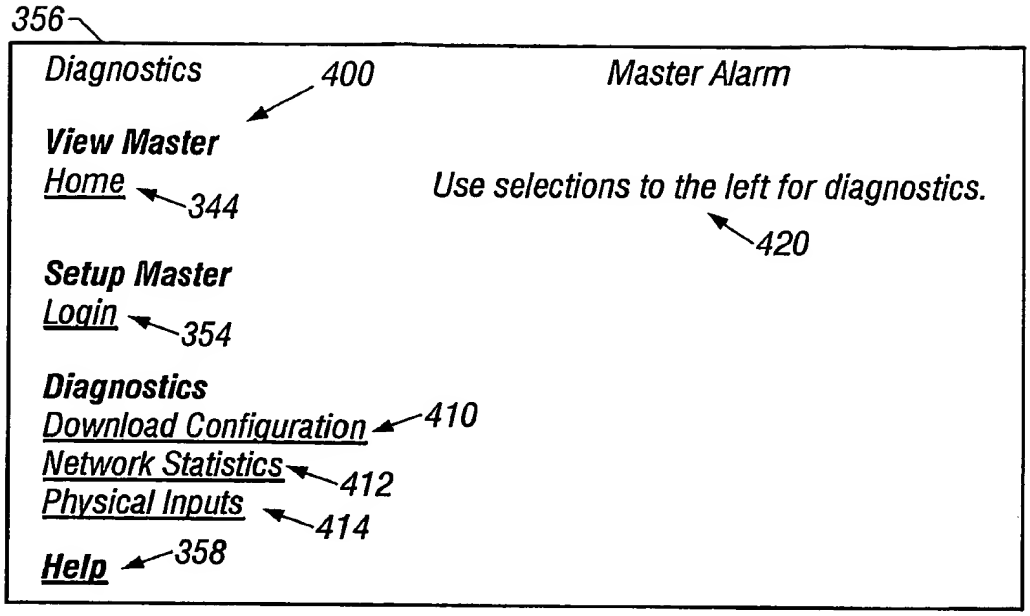

356
Diagnostics
400
Master Alarm
View Master
Home
344
Use selections to the left for diagnostics.
420
Setup Master
Login
354
Diagnostics
Download Configuration
410
Network Statistics
412
Physical Inputs
414
Help
358

FIG. 15

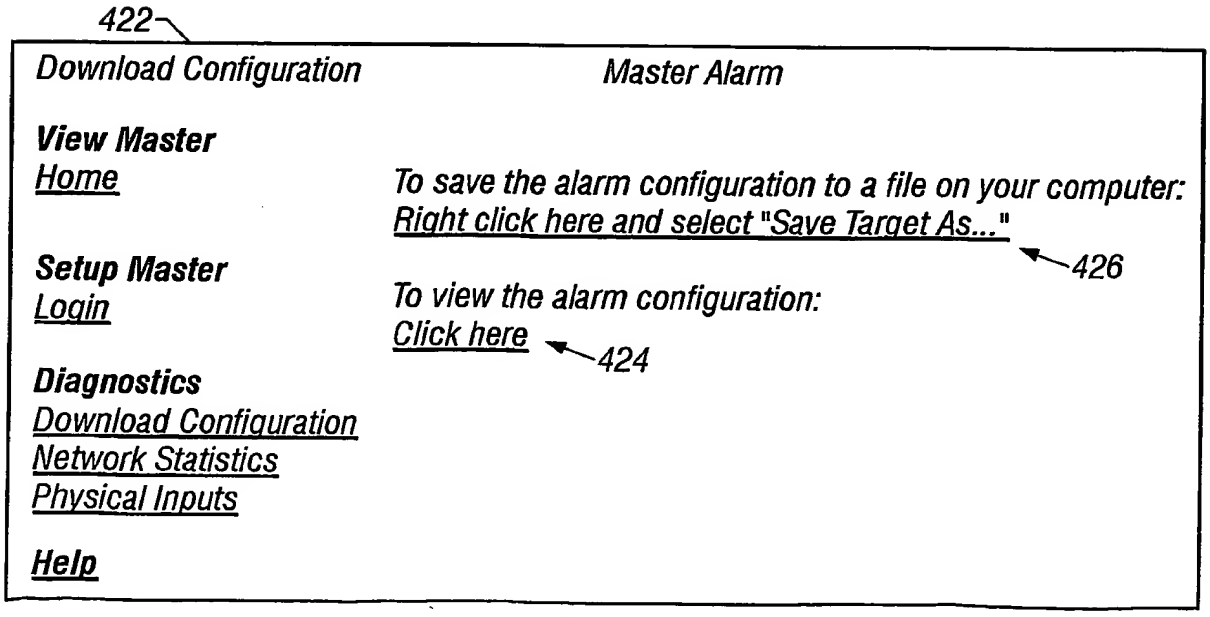

422
Download Configuration
Master Alarm
View Master
Home
To save the alarm configuration to a file on your computer:
Right click here and select "Save Target As..."
426
Setup Master
Login
To view the alarm configuration:
Click here
424
Diagnostics
Download Configuration
Network Statistics
Physical Inputs
Help

FIG. 16

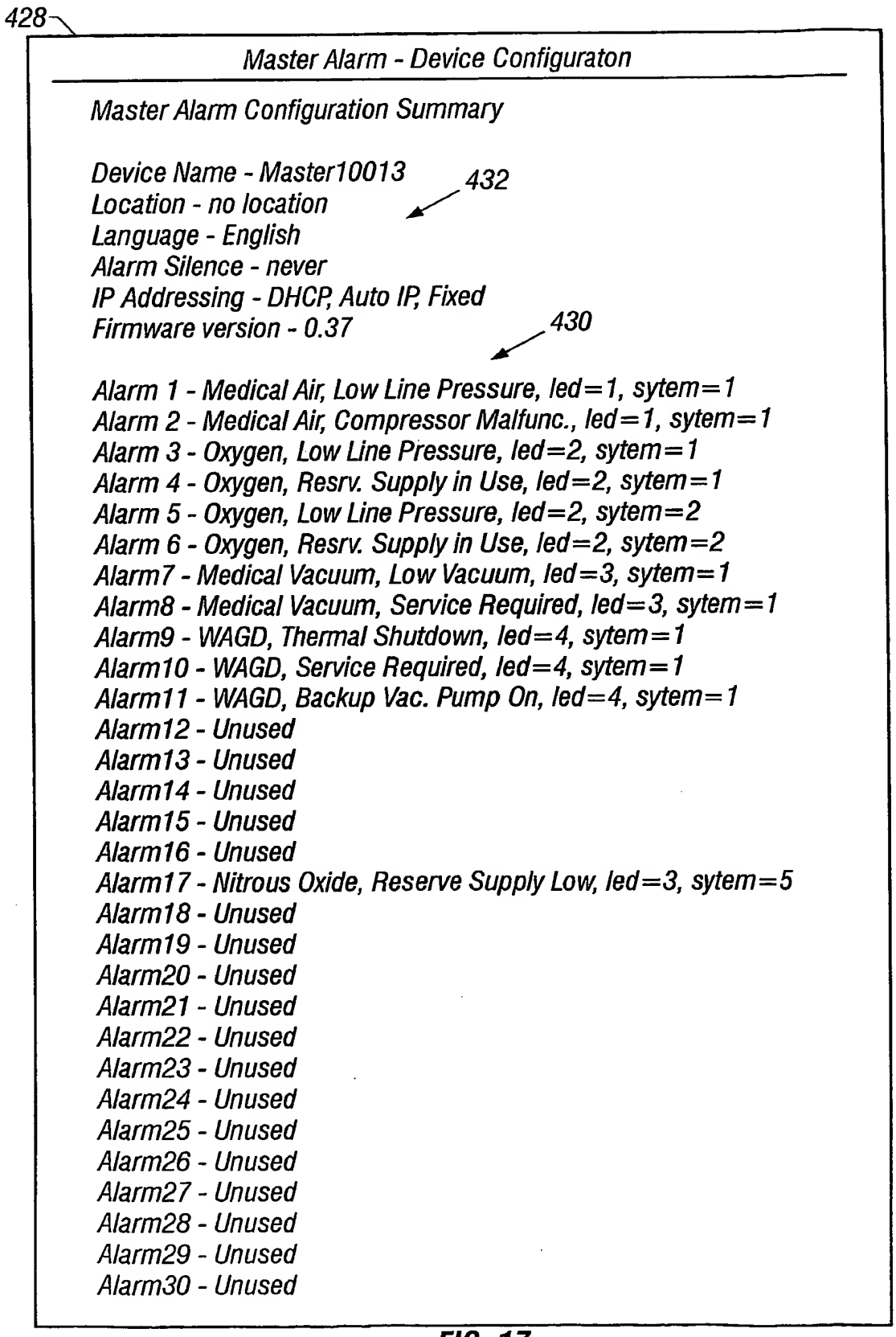

428
Master Alarm - Device Configuraton
Master Alarm Configuration Summary
Device Name - Master10013
Location - no location
Language - English
Alarm Silence - never
IP Addressing - DHCP, Auto IP, Fixed
Firmware version - 0.37
432
430
Alarm 1 - Medical Air, Low Line Pressure, led=1, sytem=1
Alarm 2 - Medical Air, Compressor Malfunc., led=1, sytem=1
Alarm 3 - Oxygen, Low Line Pressure, led=2, sytem=1
Alarm 4 - Oxygen, Resrv. Supply in Use, led=2, sytem=1
Alarm 5 - Oxygen, Low Line Pressure, led=2, sytem=2
Alarm 6 - Oxygen, Resrv. Supply in Use, led=2, sytem=2
Alarm7 - Medical Vacuum, Low Vacuum, led=3, sytem=1
Alarm8 - Medical Vacuum, Service Required, led=3, sytem=1
Alarm9 - WAGD, Thermal Shutdown, led=4, sytem=1
Alarm10 - WAGD, Service Required, led=4, sytem=1
Alarm11 - WAGD, Backup Vac. Pump On, led=4, sytem=1
Alarm12 - Unused
Alarm13 - Unused
Alarm14 - Unused
Alarm15 - Unused
Alarm16 - Unused
Alarm17 - Nitrous Oxide, Reserve Supply Low, led=3, sytem=5
Alarm18 - Unused
Alarm19 - Unused
Alarm20 - Unused
Alarm21 - Unused
Alarm22 - Unused
Alarm23 - Unused
Alarm24 - Unused
Alarm25 - Unused
Alarm26 - Unused
Alarm27 - Unused
Alarm28 - Unused
Alarm29 - Unused
Alarm30 - Unused

FIG. 17

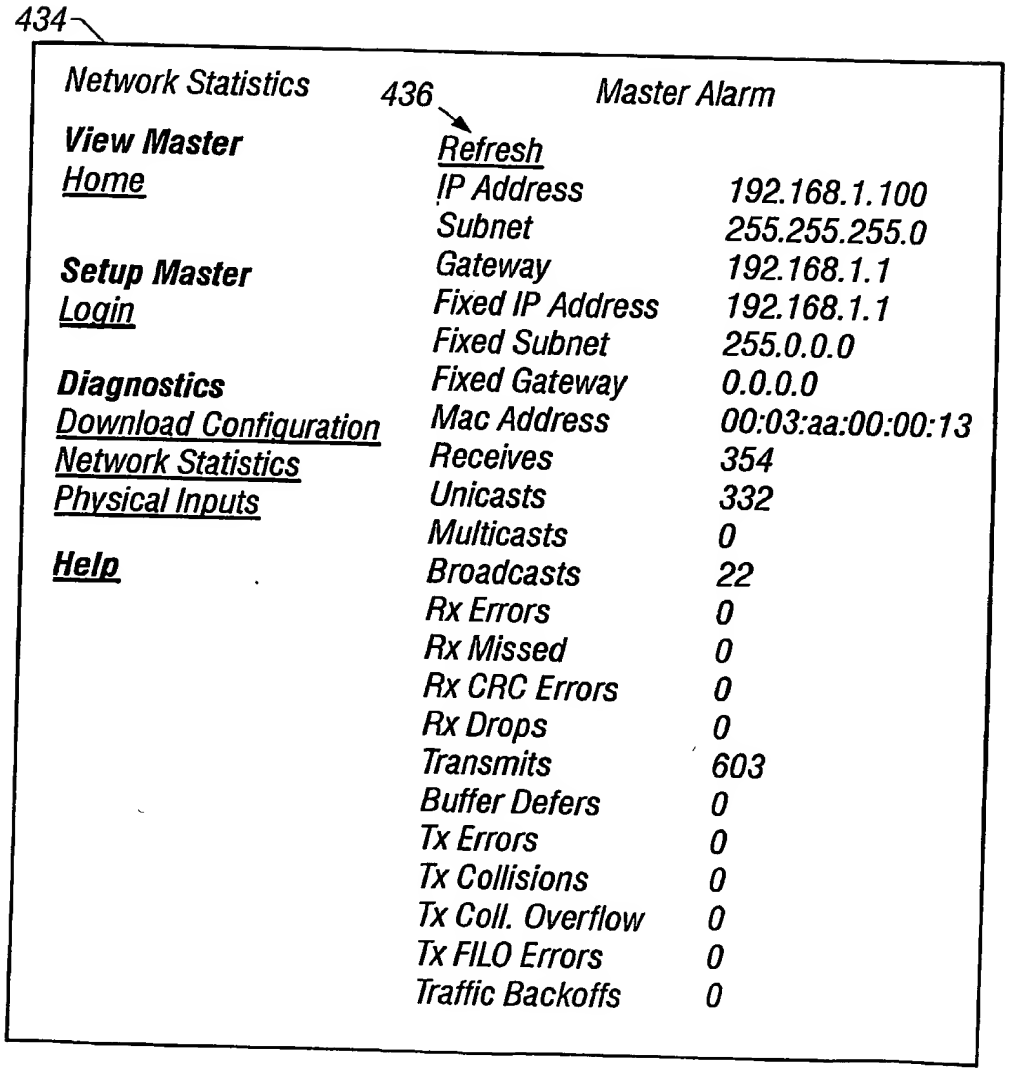
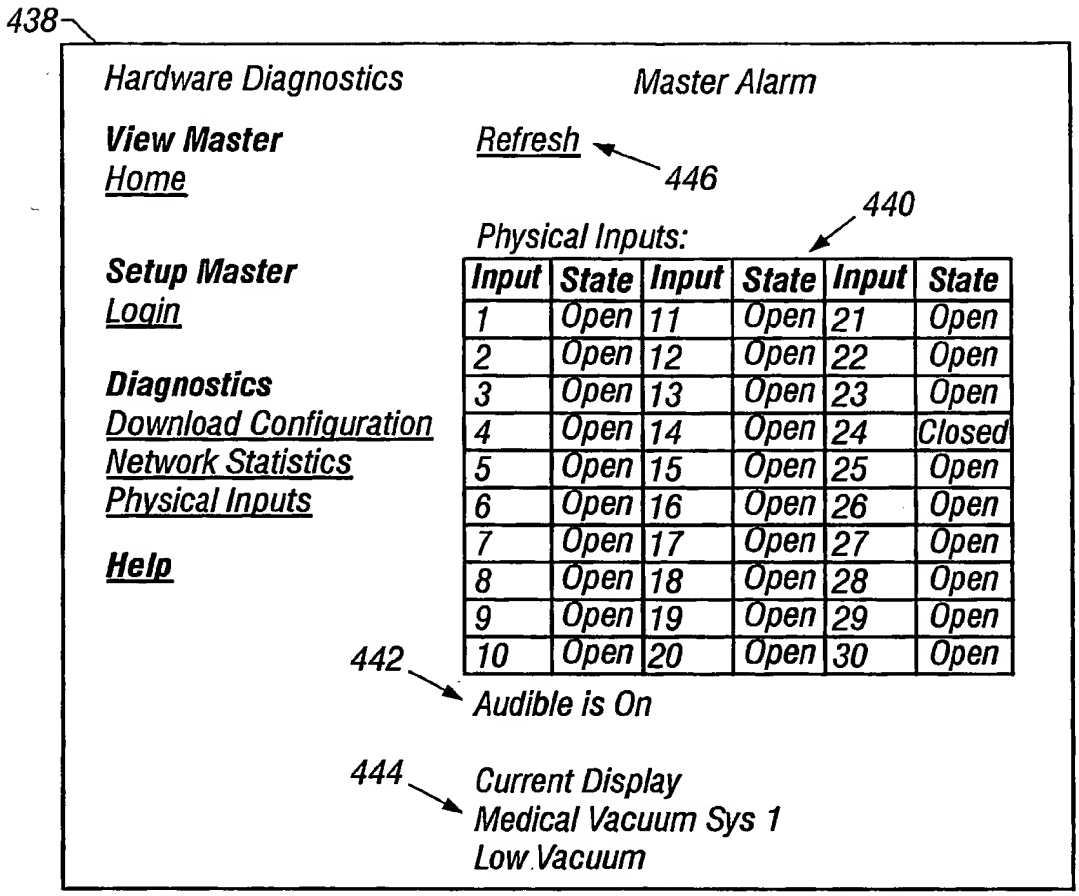

434
Network Statistics
436
Master Alarm
View Master
Home
Setup Master
Login
Diagnostics
Download Configuration
Network Statistics
Physical Inputs
Help
Refresh
IP Address 192.168.1.100
Subnet 255.255.255.0
Gateway 192.168.1.1
Fixed IP Address 192.168.1.1
Fixed Subnet 255.0.0.0
Fixed Gateway 0.0.0.0
Mac Address 00:03:aa:00:00:13
Receives 354
Unicasts 332
Multicasts 0
Broadcasts 22
Rx Errors 0
Rx Missed 0
Rx CRC Errors 0
Rx Drops 0
Transmits 603
Buffer Defers 0
Tx Errors 0
Tx Collisions 0
Tx Coll. Overflow 0
Tx FILO Errors 0
Traffic Backoffs 0

FIG. 18



Input	State	Input	State	Input	State
1	Open	11	Open	21	Open
2	Open	12	Open	22	Open
3	Open	13	Open	23	Open
4	Open	14	Open	24	Closed
5	Open	15	Open	25	Open
6	Open	16	Open	26	Open
7	Open	17	Open	27	Open
8	Open	18	Open	28	Open
9	Open	19	Open	29	Open
10	Open	20	Open	30	Open

FIG. 19

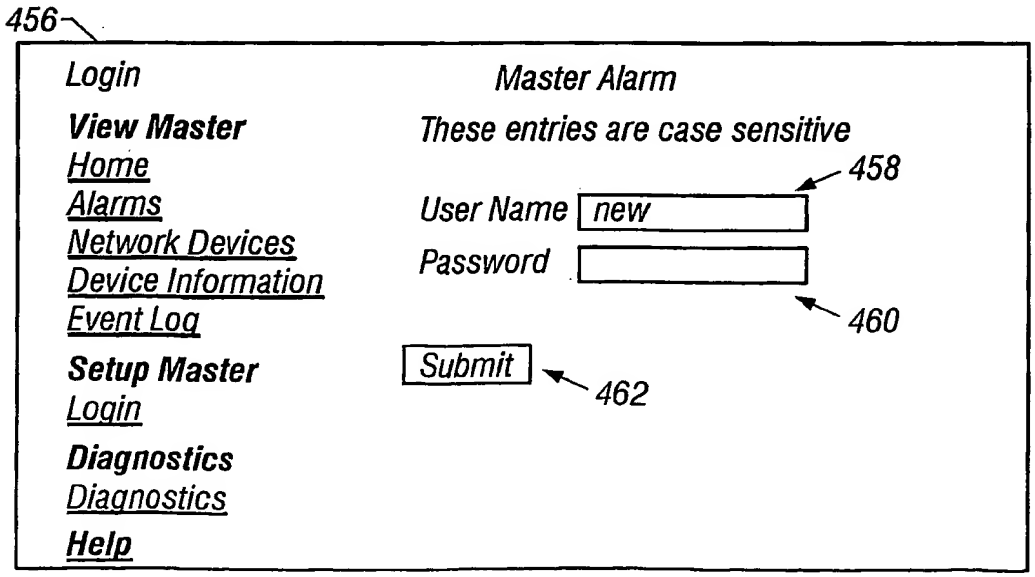


FIG. 20

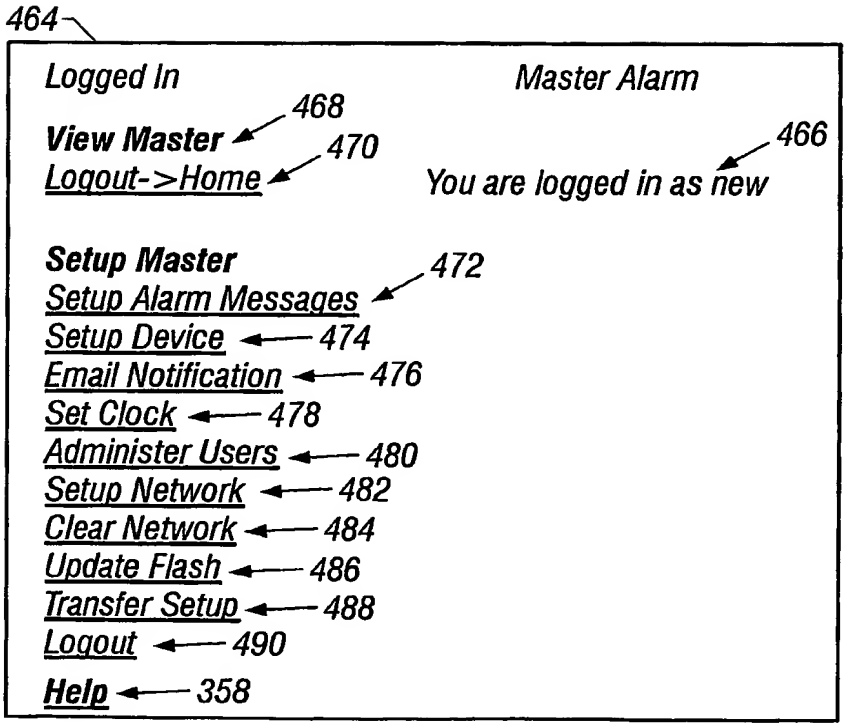

464
Logged In
Master Alarm
468
View Master
470
Logout->Home
466
You are logged in as new
Setup Master
472
Setup Alarm Messages
Setup Device
474
Email Notification
476
Set Clock
478
Administer Users
480
Setup Network
482
Clear Network
484
Update Flash
486
Transfer Setup
488
Logout
490
Help
358

FIG. 21

492

Alarm Message Setup

View Master

Home

Setup Master

Setup Alarm Messages

Setup Device

Email Notification

Set Clock

Administer Users

Setup Network

Clear Network

Update Flash

Transfer Setup

Help

Master Alarm

Click on a number to change an alarm message

494

Alarm Input	Gas Type	Message for Condition	LED	System
1	Medical Air	Low Line Pressure	1	1
2	Medical Air	Compressor Malfunc.	1	1
3	Oxygen	Low Line Pressure	2	1
4	Oxygen	Resrv. Supply in Use	2	1
5	Oxygen	Low Line Pressure	2	2
6	Oxygen	Resrv. Supply in Use	2	2
7	Medical Vacuum	Low Vacuum	3	1
8	Medical Vacuum	Service Required	3	1
9	WAGD	Thermal Shutdown	4	1
10	WAGD	Service Required	4	1
11	WAGD	Backup Vac. Pump Low	4	1
12	Unused	Unused	0	1
13	Unused	Unused	0	1
14	Unused	Unused	0	1
15	Unused	Unused	0	1
16	Unused	Unused	0	1
17	Nitrous Oxide	Reserve Supply Low	3	5
18	Unused	Unused	0	1
19	Unused	Unused	0	1
20	Unused	Unused	0	1
21	Unused	Unused	0	1
22	Unused	Unused	0	1
23	Unused	Unused	0	1
24	Unused	Unused	0	1
25	Unused	Unused	0	1
26	Unused	Unused	0	1
27	Unused	Unused	0	1
28	Unused	Unused	0	1
29	Unused	Unused	0	1
30	Unused	Unused	0	1

494

494

494

FIG. 22

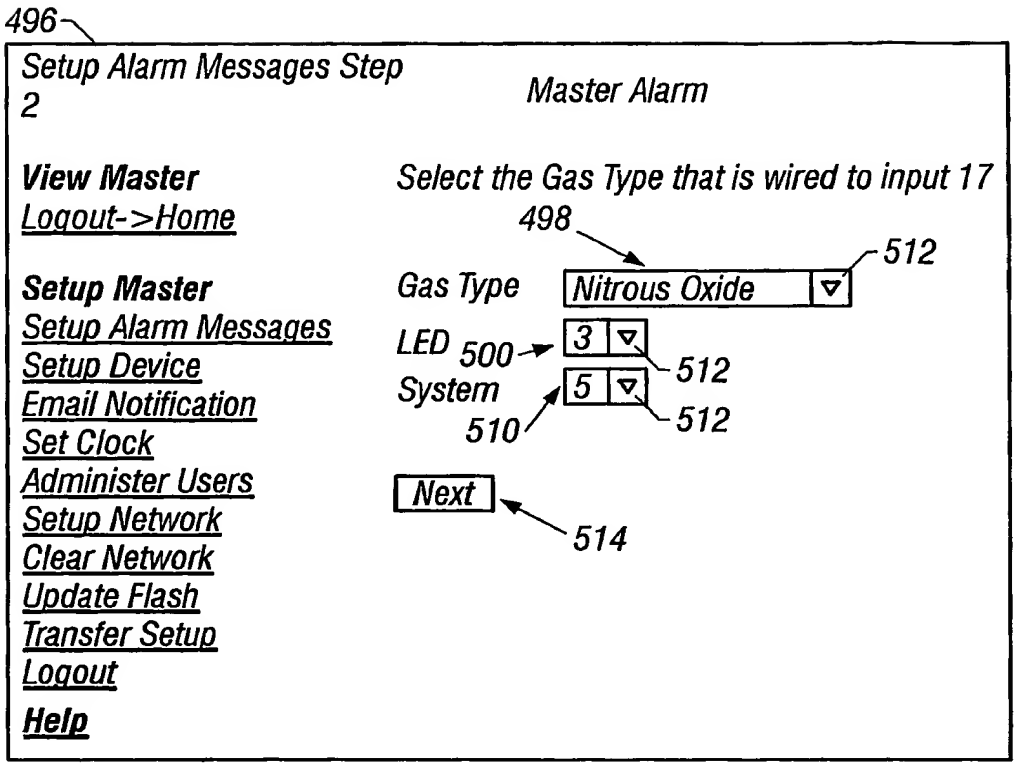

496
Setup Alarm Messages Step 2
Master Alarm
View Master
Logout->Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Logout
Help
Select the Gas Type that is wired to input 17
498
512
Gas Type
Nitrous Oxide
LED 500
3
512
System
5
510
512
Next
514

FIG. 23

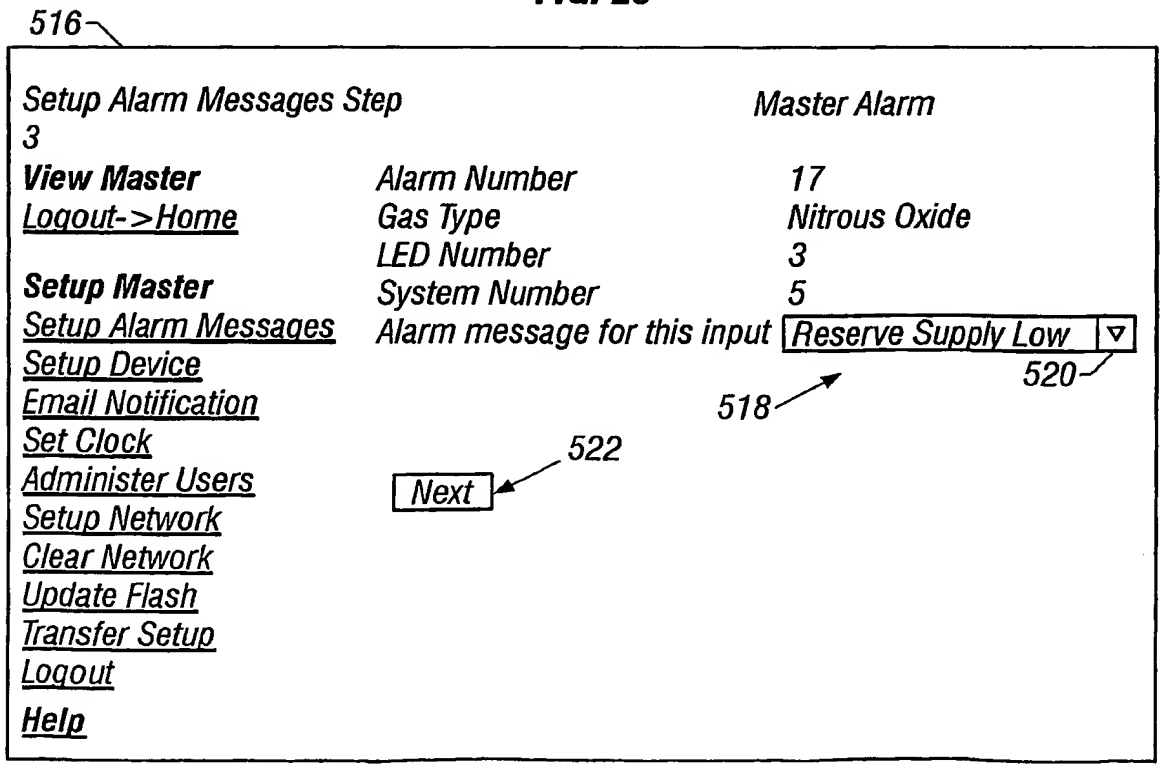

516
Setup Alarm Messages Step 3
Master Alarm
View Master
Logout->Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Logout
Help
Alarm Number
17
Gas Type
Nitrous Oxide
LED Number
3
System Number
5
Alarm message for this input
Reserve Supply Low
520
518
522
Next

FIG. 24

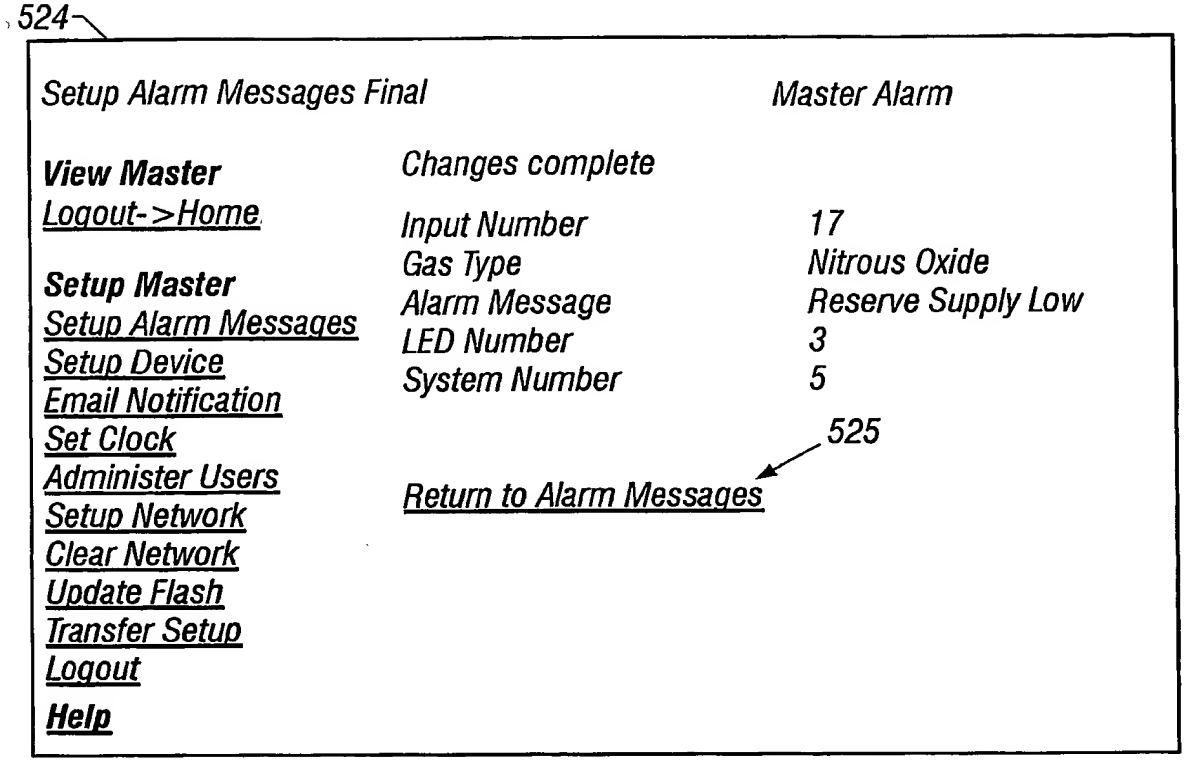

524
Setup Alarm Messages Final
Master Alarm
View Master
Logout->Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Logout
Help
Changes complete
Input Number 17
Gas Type Nitrous Oxide
Alarm Message Reserve Supply Low
LED Number 3
System Number 5
525
Return to Alarm Messages

FIG. 25

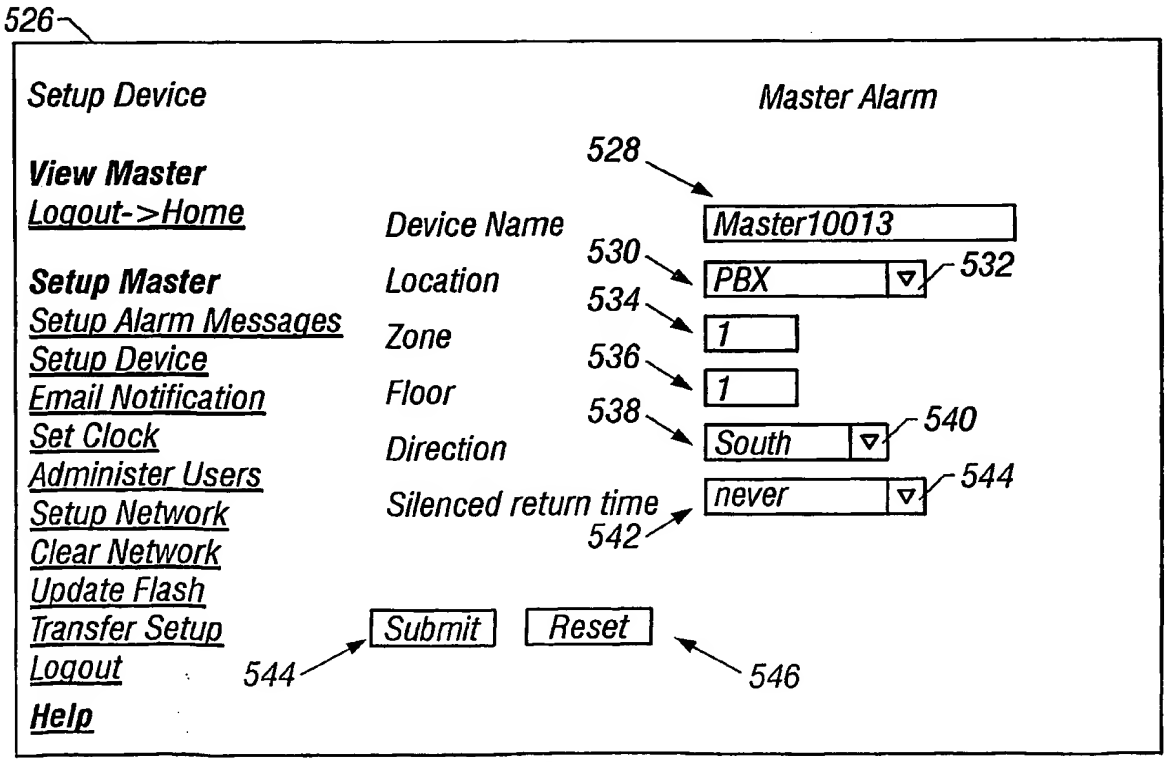

526
Setup Device
Master Alarm
View Master
Logout->Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Logout
Help
528
Device Name
Master10013
530
Location
PBX
532
534
Zone
1
536
Floor
1
538
Direction
South
540
Silenced return time
never
544
542
Submit
Reset
544
546

FIG. 26

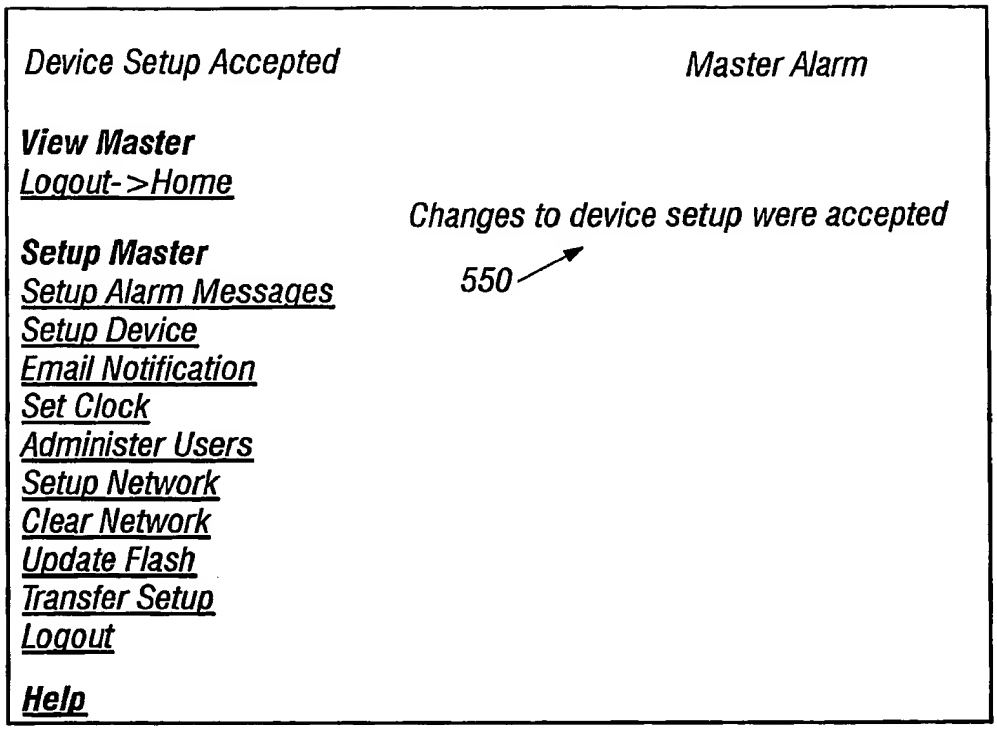

Device Setup Accepted
Master Alarm
View Master
Logout->Home
Changes to device setup were accepted
550
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Logout
Help

FIG. 27

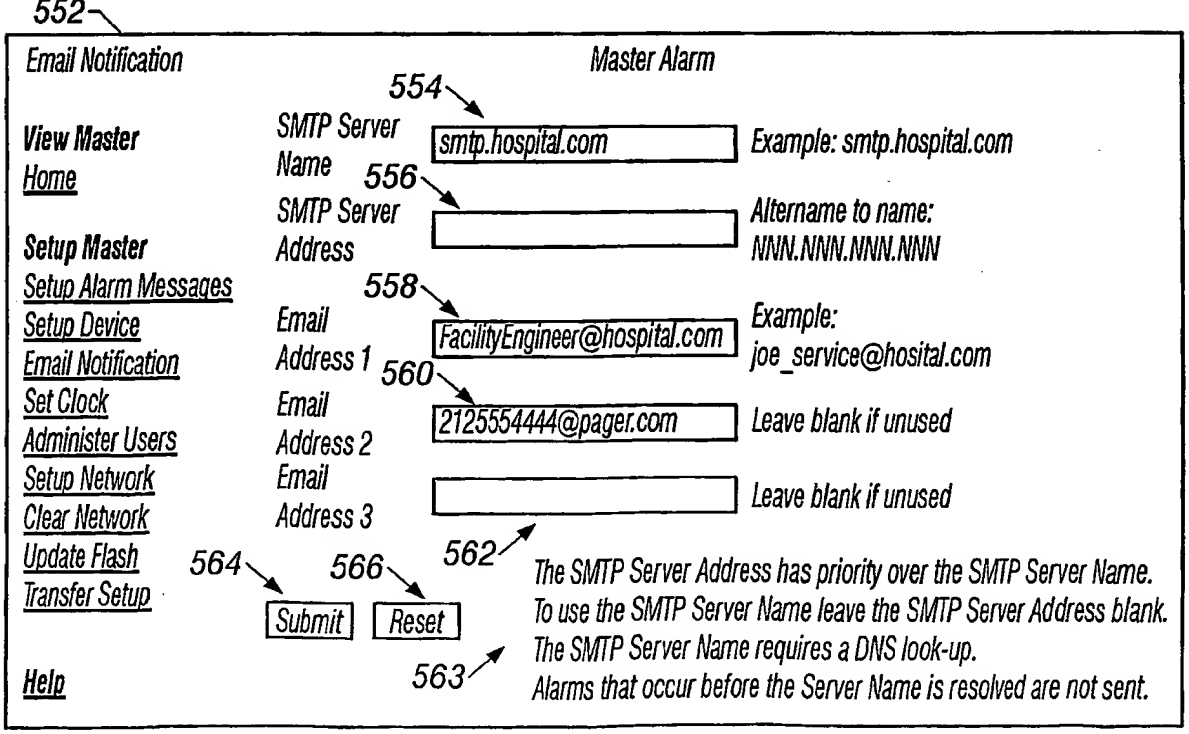

552
Email Notification
Master Alarm
554
SMTP Server Name
smtp.hospital.com
Example: smtp.hospital.com
556
SMTP Server Address
Alternate to name: NNN.NNN.NNN.NNN
558
Email Address 1
FacilityEngineer@hospital.com
Example: joe_service@hosital.com
560
Email Address 2
2125554444@pager.com
Leave blank if unused
Email Address 3
Leave blank if unused
562
564
566
Submit
Reset
The SMTP Server Address has priority over the SMTP Server Name.
To use the SMTP Server Name leave the SMTP Server Address blank.
The SMTP Server Name requires a DNS look-up.
Alarms that occur before the Server Name is resolved are not sent.
563
View Master
Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Help

FIG. 28

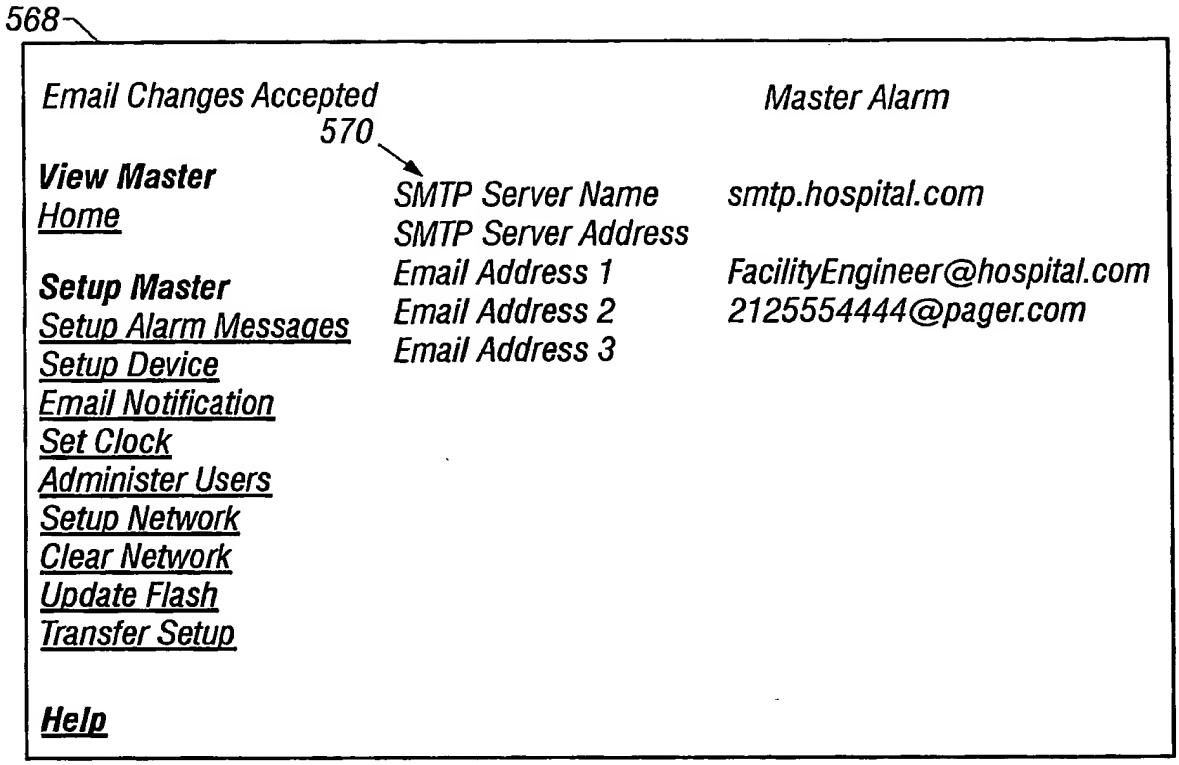

568
Email Changes Accepted
Master Alarm
570
View Master
Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Help
SMTP Server Name
SMTP Server Address
Email Address 1
Email Address 2
Email Address 3
smtp.hospital.com
FacilityEngineer@hospital.com
2125554444@pager.com

FIG. 29

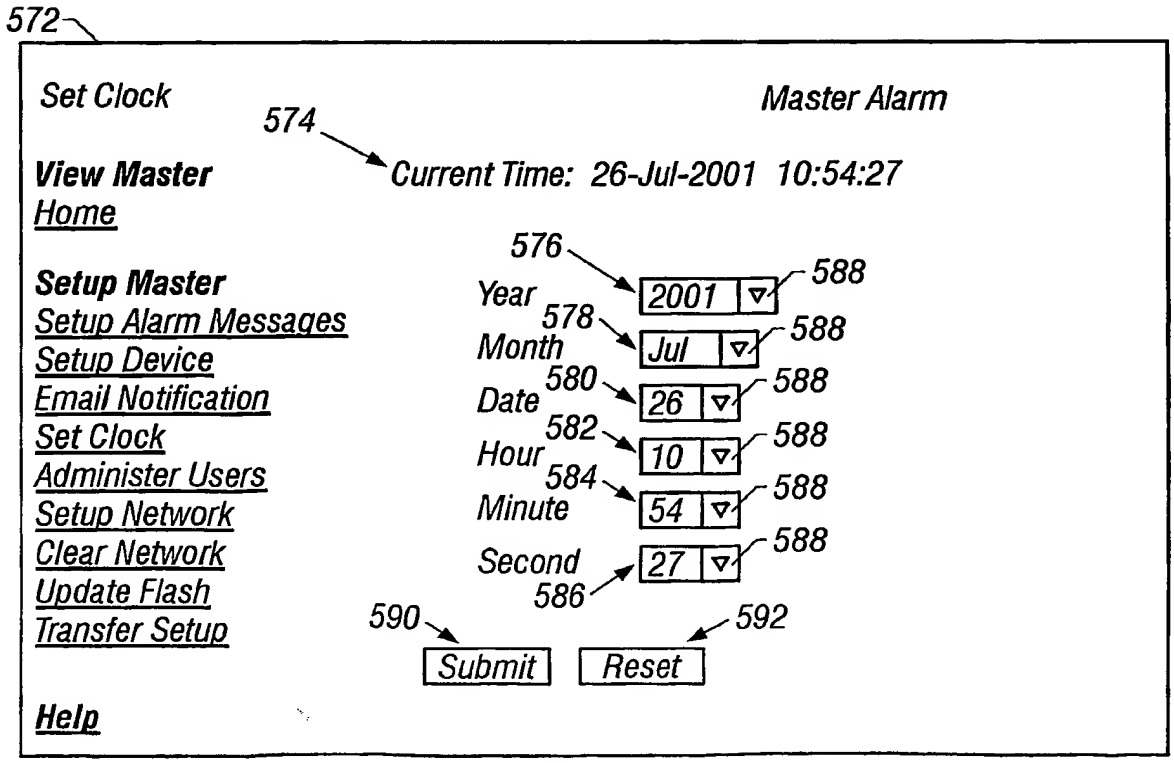

572
Set Clock
Master Alarm
574
Current Time: 26-Jul-2001 10:54:27
View Master
Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Help
576
Year
2001
588
578
Month
Jul
588
580
Date
26
588
582
Hour
10
588
584
Minute
54
588
Second
27
588
586
590
Submit
592
Reset

FIG. 30

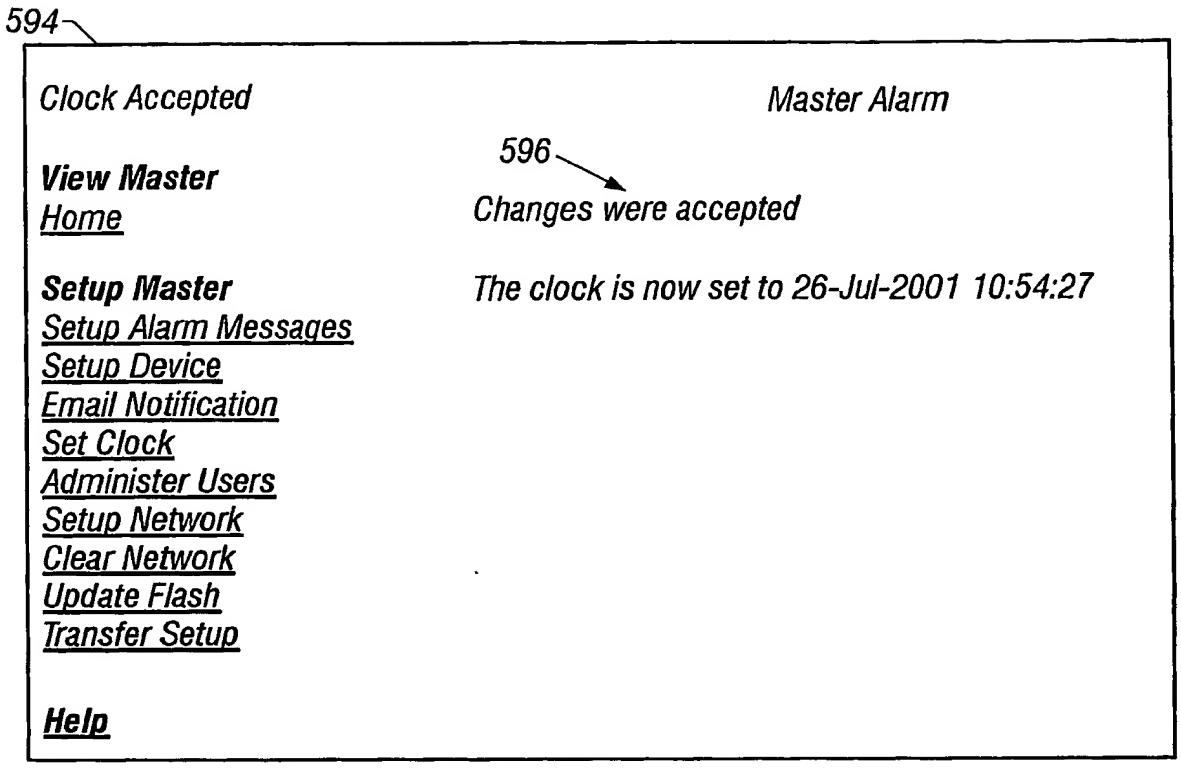

594
Clock Accepted
Master Alarm
596
View Master
Home
Changes were accepted
Setup Master
The clock is now set to 26-Jul-2001 10:54:27
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Help

FIG. 31

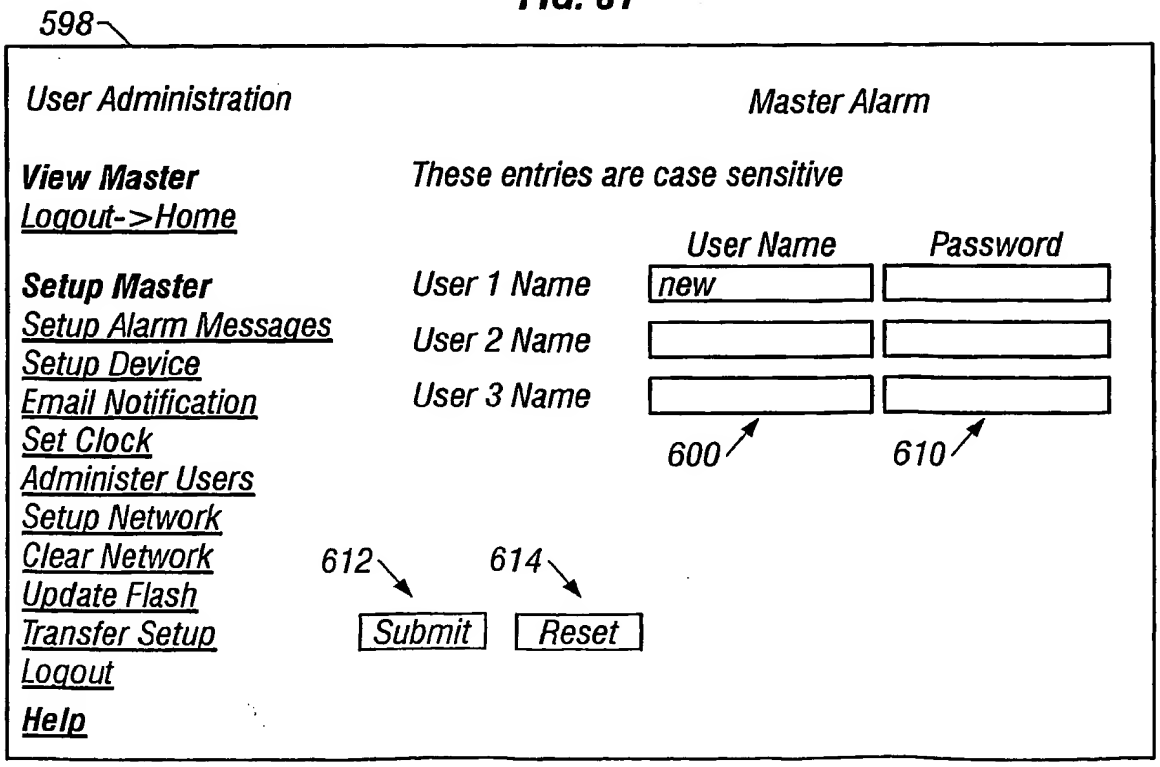

598
User Administration
Master Alarm
View Master
Logout->Home
These entries are case sensitive
User Name
Password
Setup Master
User 1 Name
new
Setup Alarm Messages
User 2 Name
Setup Device
Email Notification
User 3 Name
Set Clock
600
610
Administer Users
Setup Network
Clear Network
612
614
Update Flash
Transfer Setup
Submit
Reset
Logout
Help

FIG. 32

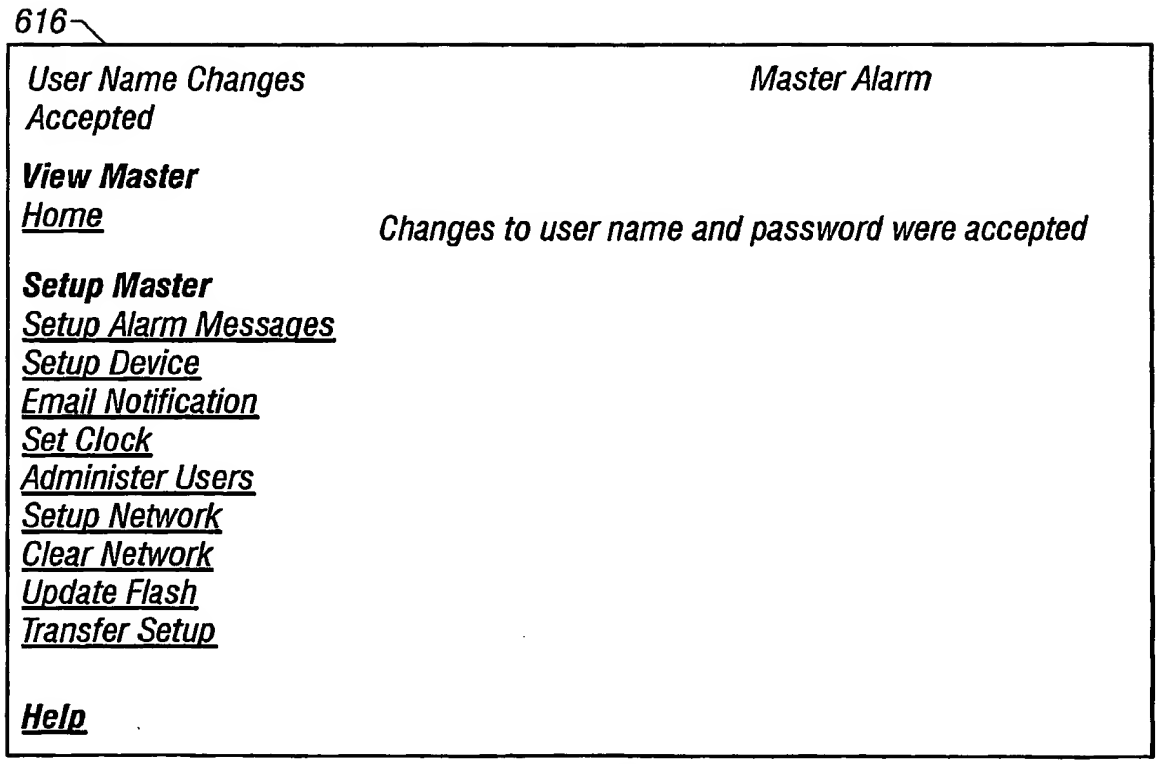

616
User Name Changes Accepted
Master Alarm
View Master
Home
Changes to user name and password were accepted
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Help

FIG. 33

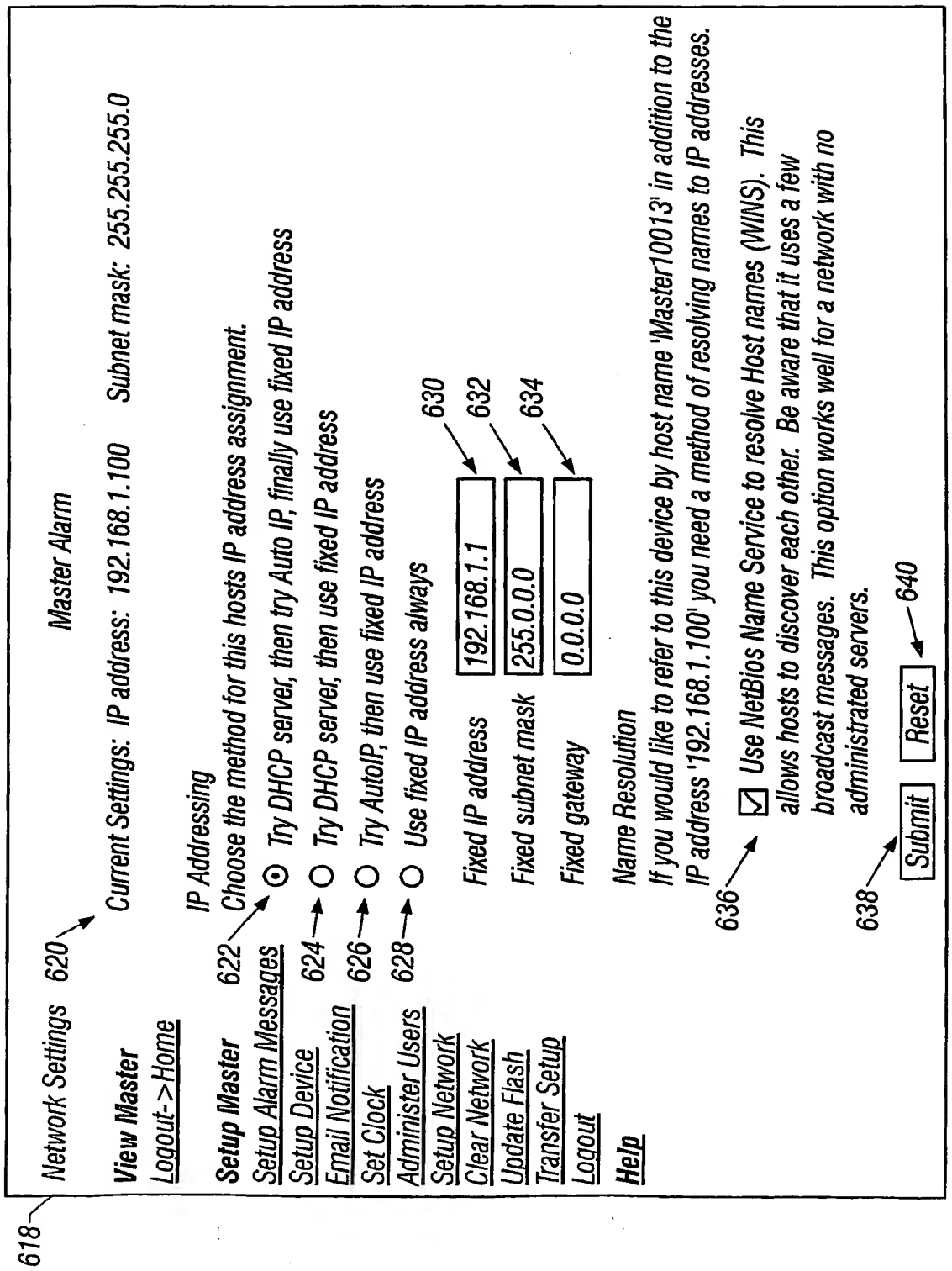

618
Network Settings
620
Master Alarm
View Master
Current Settings: IP address: 192.168.1.100 Subnet mask: 255.255.255.0
Logout->Home
IP Addressing
Setup Master
622
Choose the method for this hosts IP address assignment.
Setup Alarm Messages
Try DHCP server, then try Auto IP, finally use fixed IP address
624
Setup Device
Try DHCP server, then use fixed IP address
626
Email Notification
Try AutoIP, then use fixed IP address
628
Set Clock
Administer Users
Use fixed IP address always
630
Setup Network
Fixed IP address
192.168.1.1
632
Clear Network
Update Flash
Fixed subnet mask
255.0.0.0
634
Transfer Setup
Logout
Fixed gateway
0.0.0.0
Help
Name Resolution
If you would like to refer to this device by host name 'Master10013' in addition to the IP address '192.168.1.100' you need a method of resolving names to IP addresses.
636
Use NetBios Name Service to resolve Host names (WINS). This allows hosts to discover each other. Be aware that it uses a few broadcast messages. This option works well for a network with no administrated servers.
638
Submit
Reset
640

FIG. 34

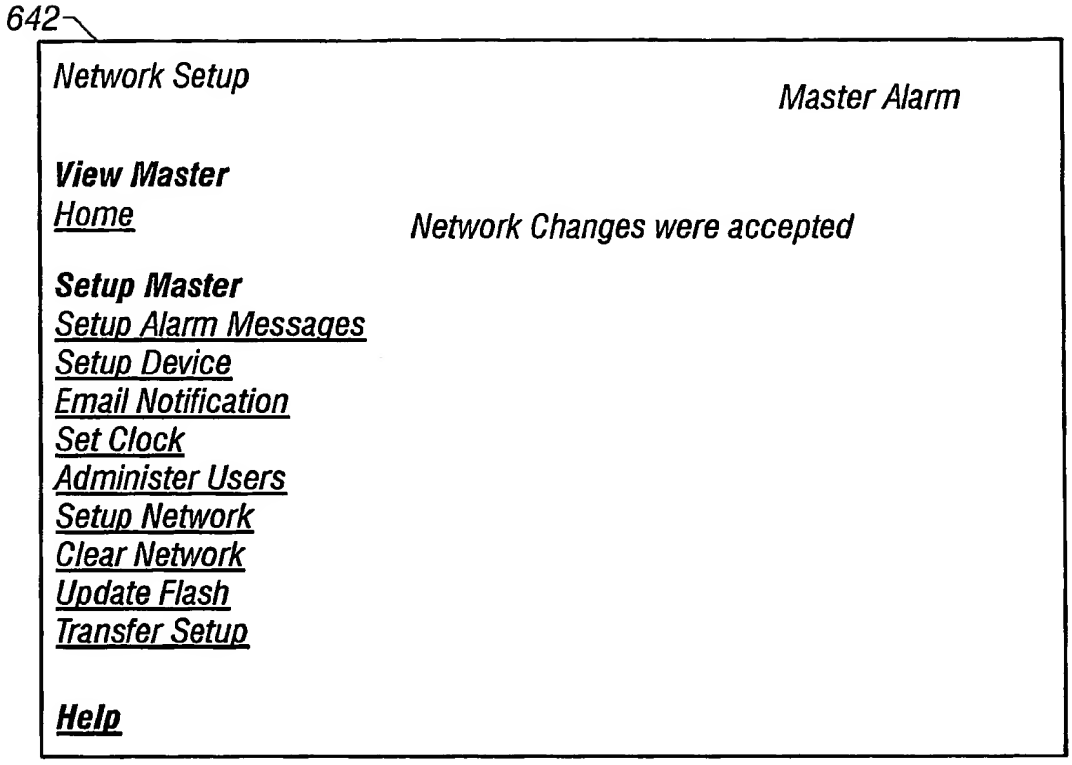

642
Network Setup
Master Alarm
View Master
Home
Network Changes were accepted
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Help

FIG. 35

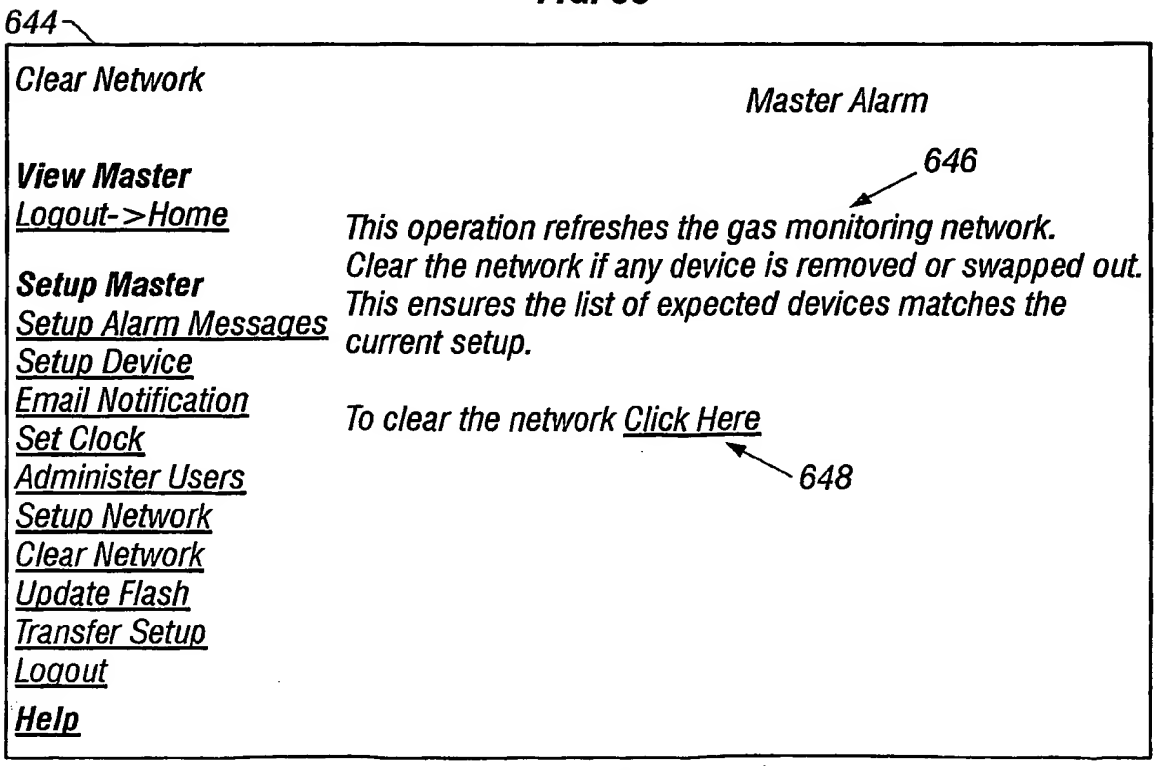

644
Clear Network
Master Alarm
646
View Master
Logout->Home
This operation refreshes the gas monitoring network.
Clear the network if any device is removed or swapped out.
This ensures the list of expected devices matches the
current setup.
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Logout
To clear the network Click Here
648
Help

FIG. 36

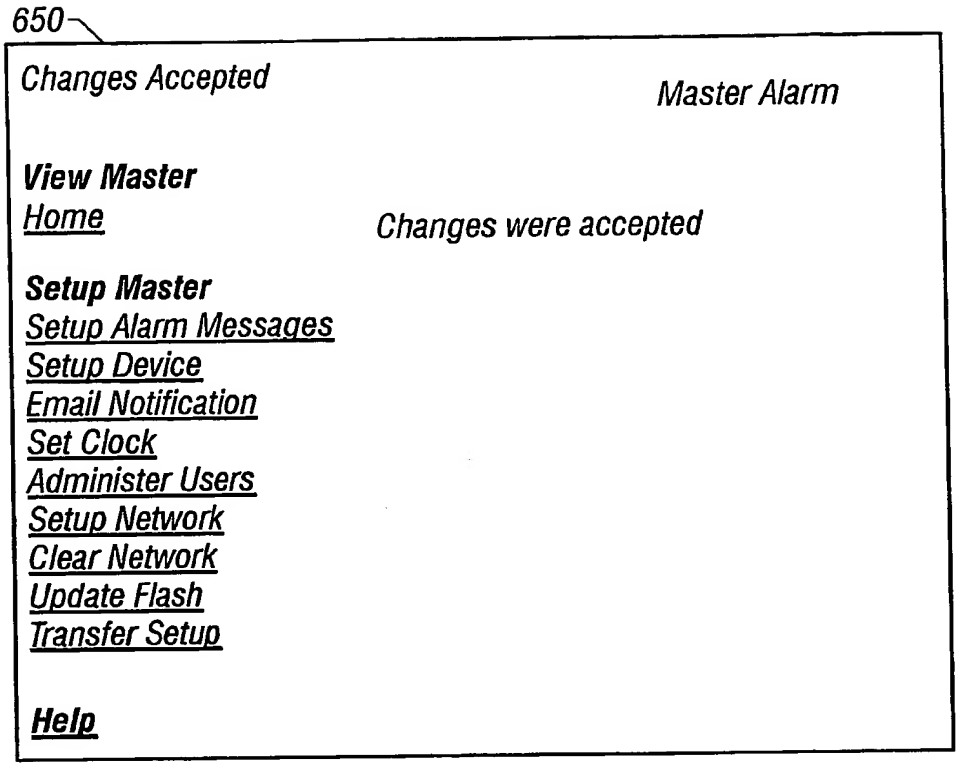

650
Changes Accepted
Master Alarm
View Master
Home
Changes were accepted
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Help

FIG. 37

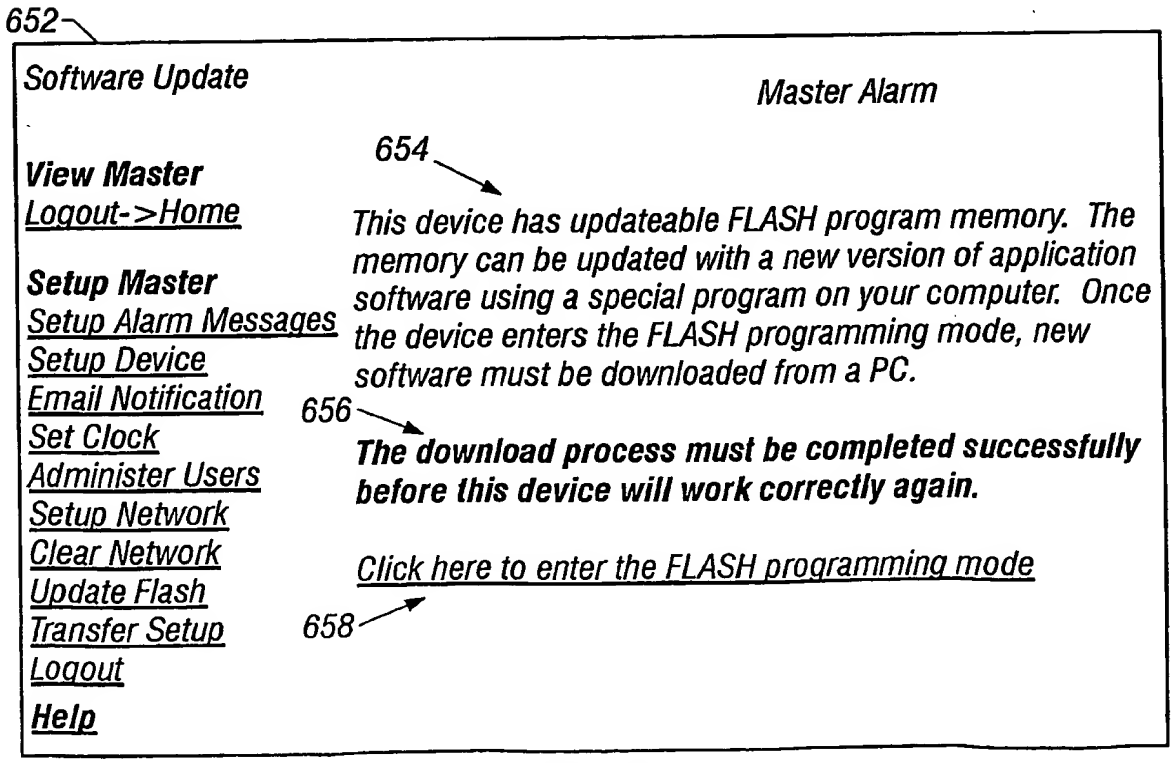

652
Software Update
Master Alarm
654
View Master
Logout->Home
This device has updateable FLASH program memory. The memory can be updated with a new version of application software using a special program on your computer. Once the device enters the FLASH programming mode, new software must be downloaded from a PC.
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
656
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Logout
Help
The download process must be completed successfully before this device will work correctly again.
Click here to enter the FLASH programming mode
658

FIG. 38

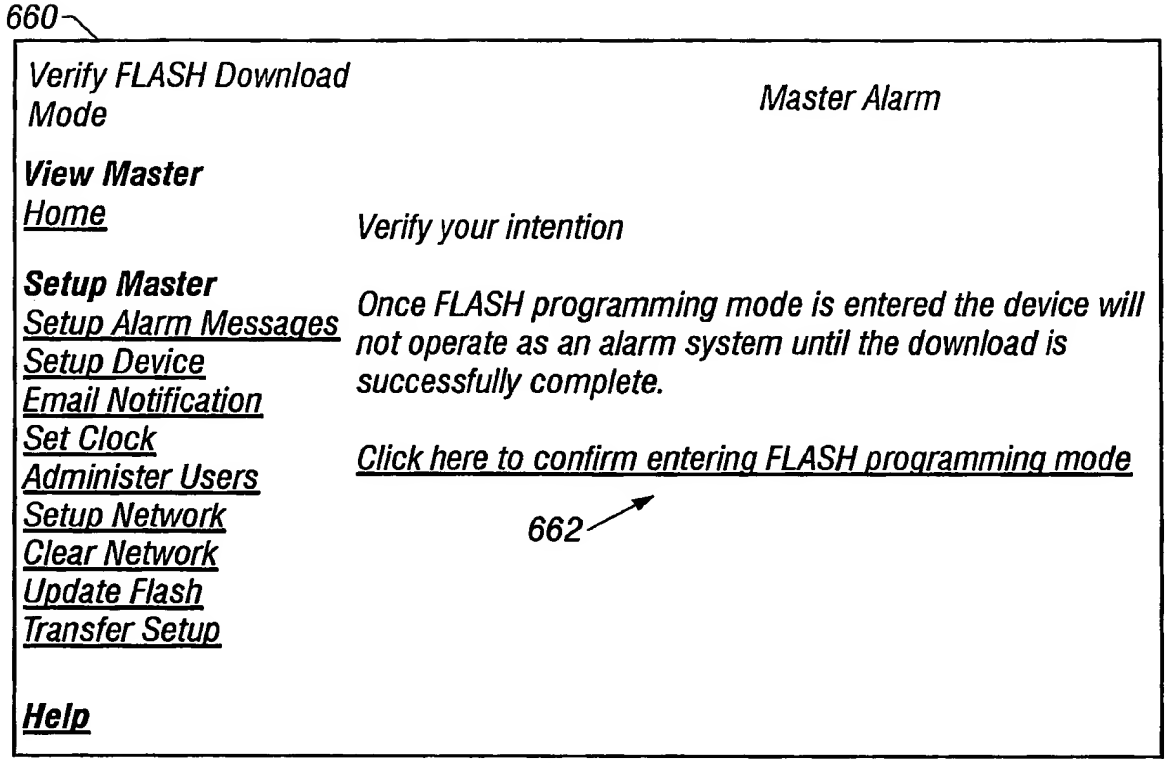

660
Verify FLASH Download Mode
Master Alarm
View Master
Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Help
Verify your intention
Once FLASH programming mode is entered the device will not operate as an alarm system until the download is successfully complete.
Click here to confirm entering FLASH programming mode
662

FIG. 39

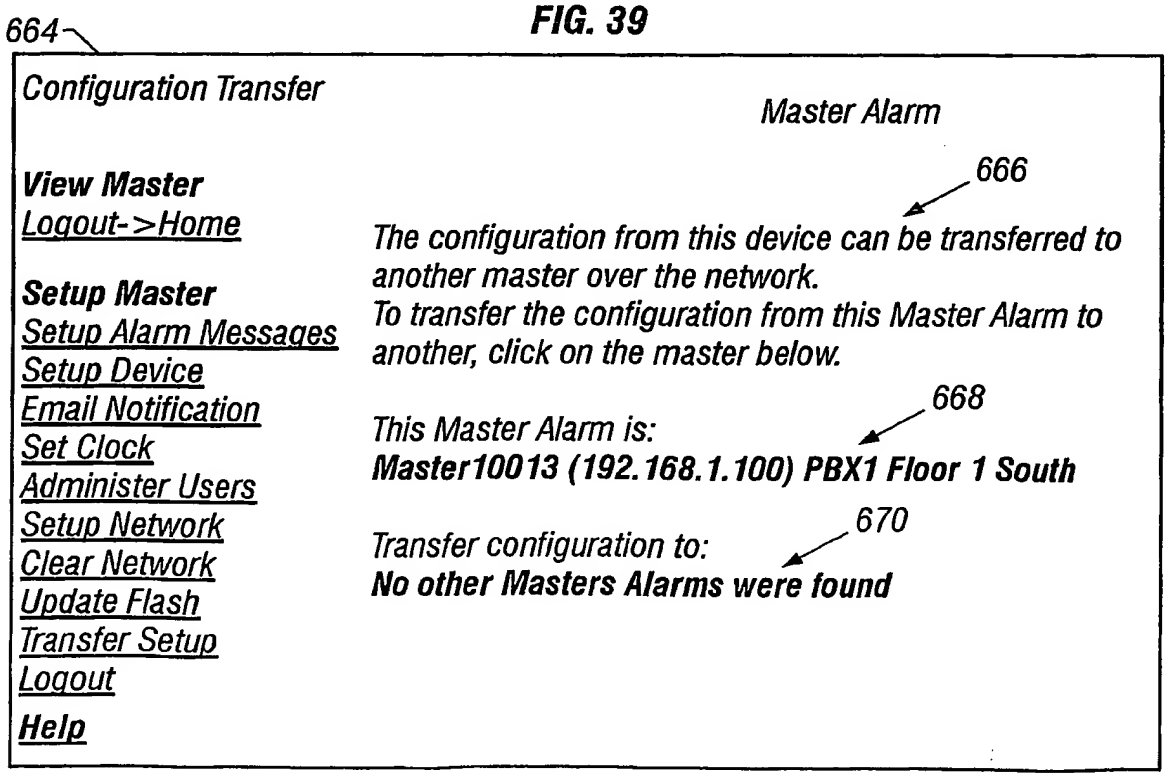

664
Configuration Transfer
Master Alarm
View Master
Logout->Home
Setup Master
Setup Alarm Messages
Setup Device
Email Notification
Set Clock
Administer Users
Setup Network
Clear Network
Update Flash
Transfer Setup
Logout
Help
666
The configuration from this device can be transferred to another master over the network.
To transfer the configuration from this Master Alarm to another, click on the master below.
668
This Master Alarm is:
Master10013 (192.168.1.100) PBX1 Floor 1 South
670
Transfer configuration to:
No other Masters Alarms were found

FIG. 40

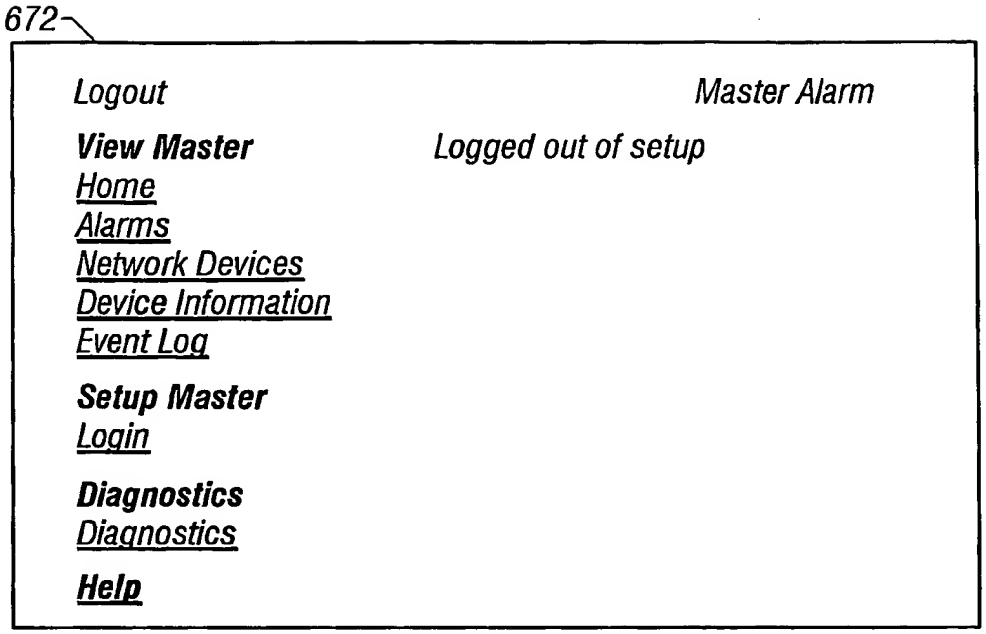

672
Logout
Master Alarm
View Master
Logged out of setup
Home
Alarms
Network Devices
Device Information
Event Log
Setup Master
Login
Diagnostics
Diagnostics
Help

FIG. 41

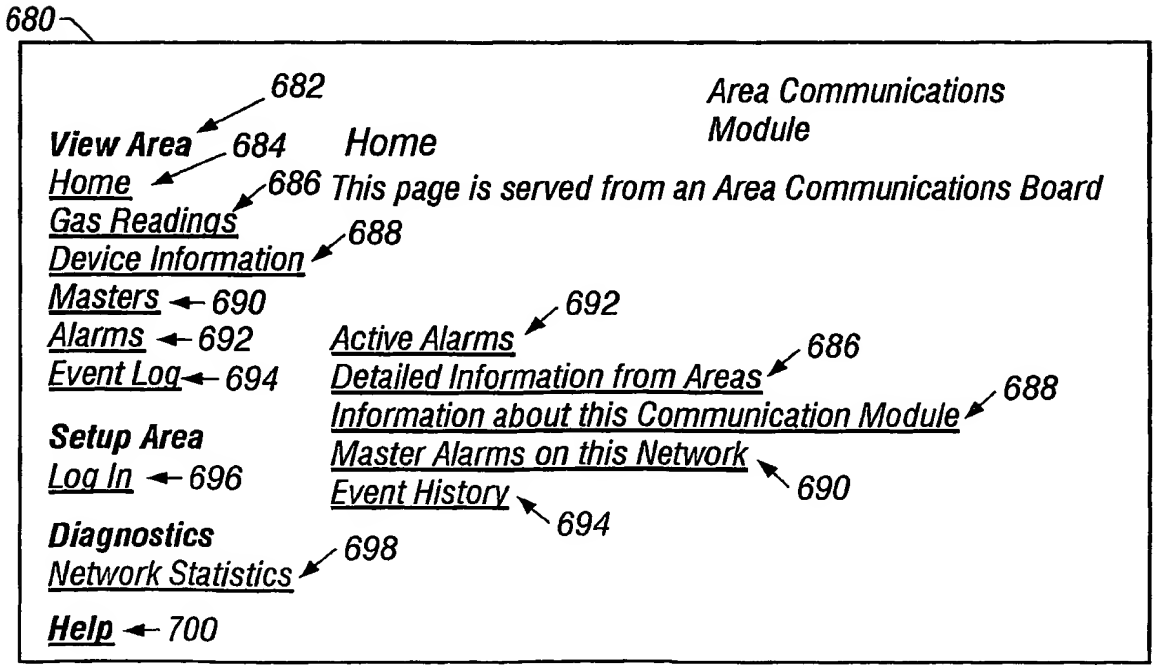

680
682
Area Communications Module
View Area
684
Home
Home
686
This page is served from an Area Communications Board
Gas Readings
Device Information
688
Masters
690
692
Alarms
692
Active Alarms
Event Log
694
686
Detailed Information from Areas
688
Information about this Communication Module
Setup Area
Master Alarms on this Network
Log In
696
690
Event History
694
Diagnostics
698
Network Statistics
Help
700

FIG. 42

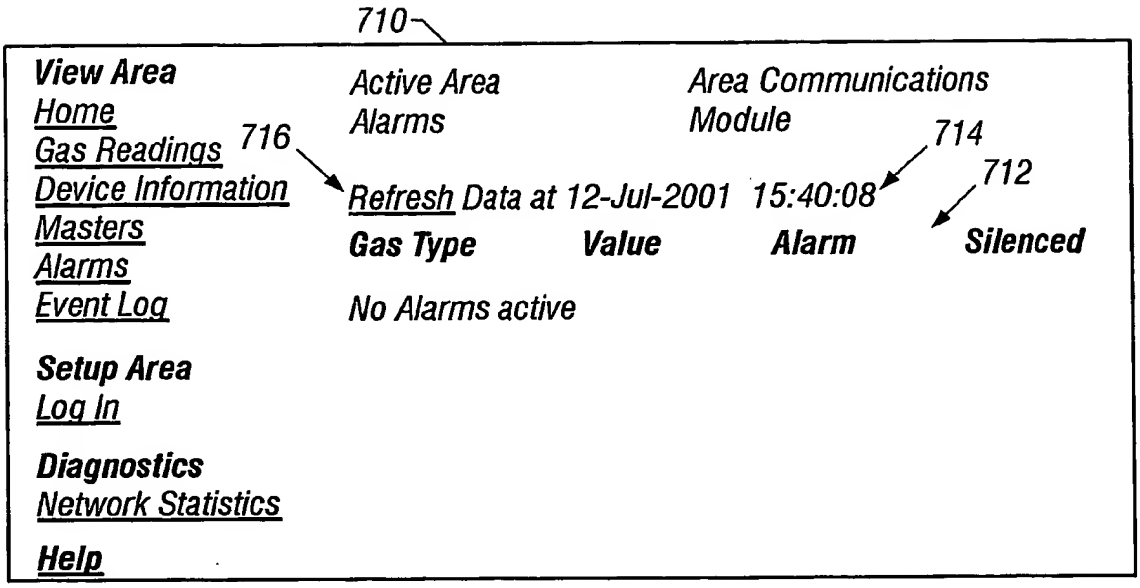

710
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Log In
Diagnostics
Network Statistics
Help
Active Area Alarms
Area Communications Module
716
714
712
Refresh Data at 12-Jul-2001 15:40:08
Gas Type
Value
Alarm
Silenced
No Alarms active

FIG. 43

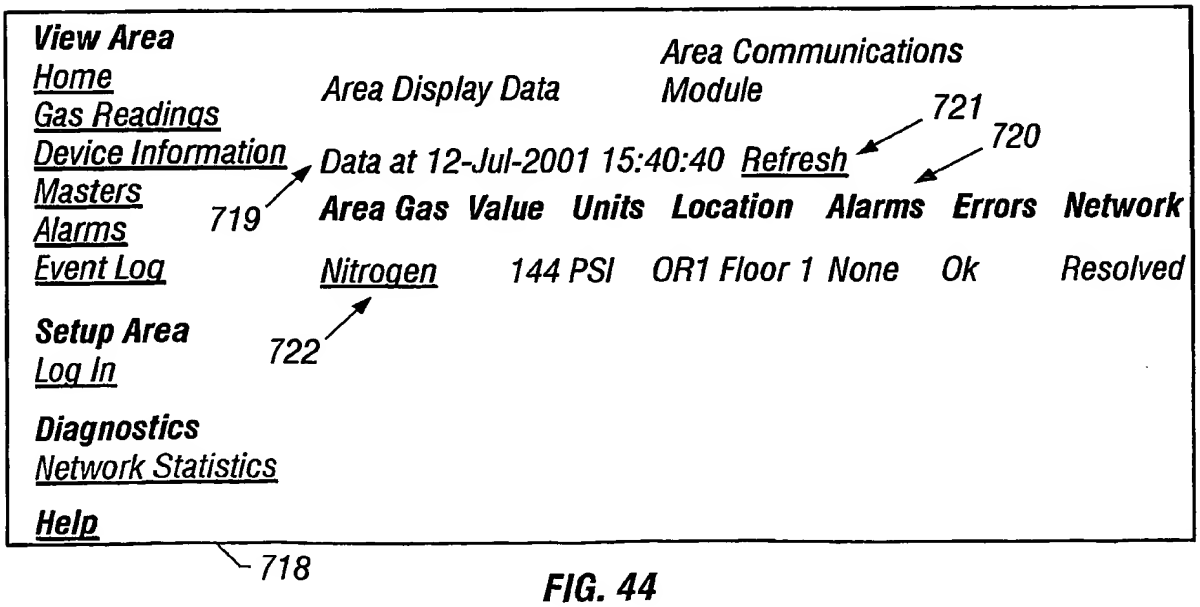

View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Log In
Diagnostics
Network Statistics
Help
Area Display Data
Area Communications Module
721
720
Data at 12-Jul-2001 15:40:40 Refresh
719
Area Gas
Value
Units
Location
Alarms
Errors
Network
Nitrogen
144 PSI
OR1 Floor 1
None
Ok
Resolved
722
718

FIG. 44

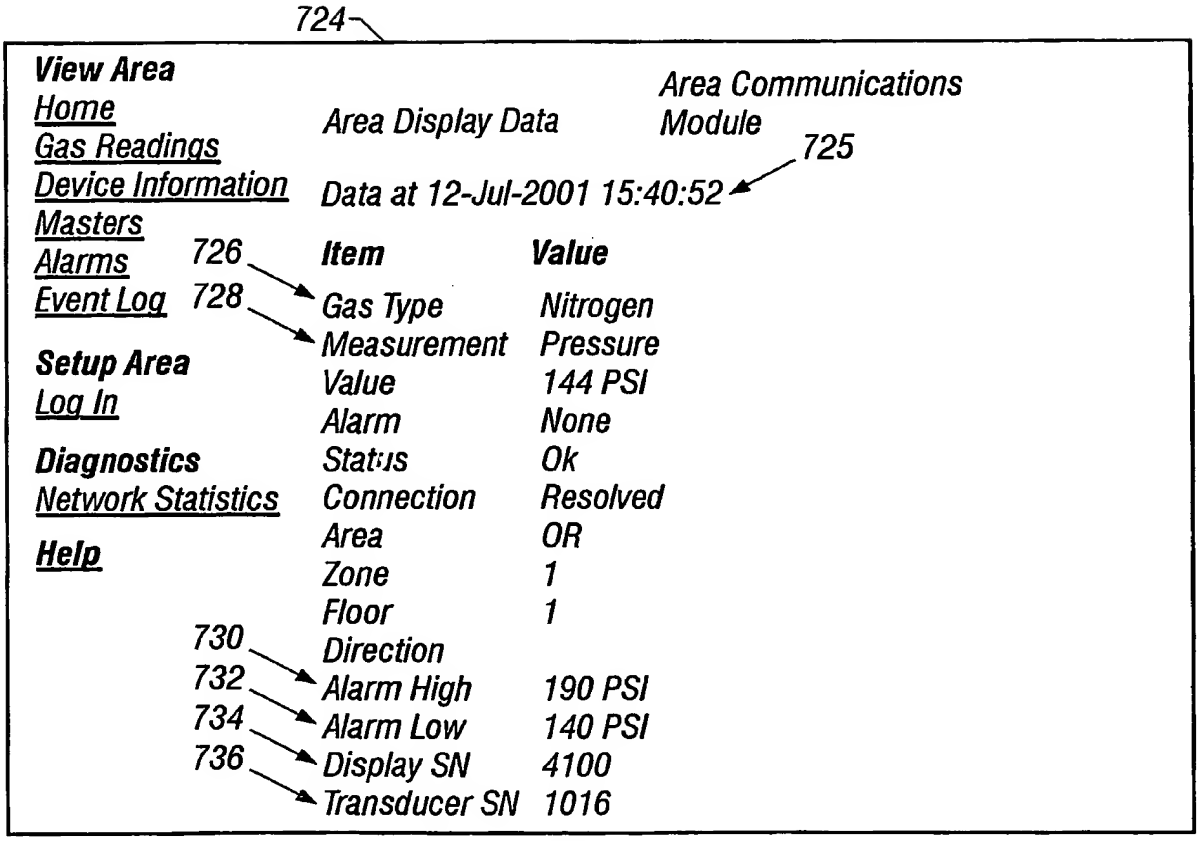

724
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Log In
Diagnostics
Network Statistics
Help
Area Display Data
Area Communications Module
725
Data at 12-Jul-2001 15:40:52
726
728
730
732
734
736
Item
Value
Gas Type
Nitrogen
Measurement
Pressure
Value
144 PSI
Alarm
None
Status
Ok
Connection
Resolved
Area
OR
Zone
1
Floor
1
Direction
Alarm High
190 PSI
Alarm Low
140 PSI
Display SN
4100
Transducer SN
1016

FIG. 45

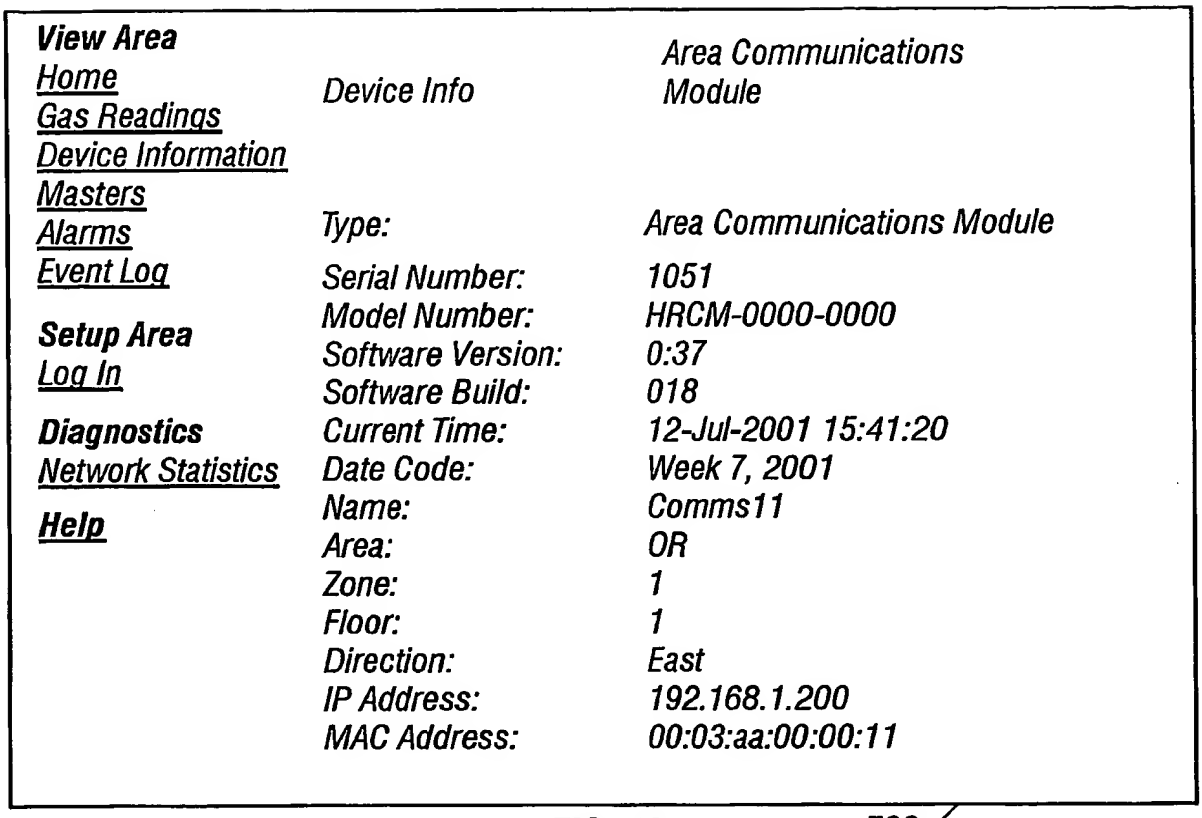

View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Log In
Diagnostics
Network Statistics
Help
Device Info
Area Communications Module
Type: Area Communications Module
Serial Number: 1051
Model Number: HRCM-0000-0000
Software Version: 0:37
Software Build: 018
Current Time: 12-Jul-2001 15:41:20
Date Code: Week 7, 2001
Name: Comms11
Area: OR
Zone: 1
Floor: 1
Direction: East
IP Address: 192.168.1.200
MAC Address: 00:03:aa:00:00:11
738

FIG. 46

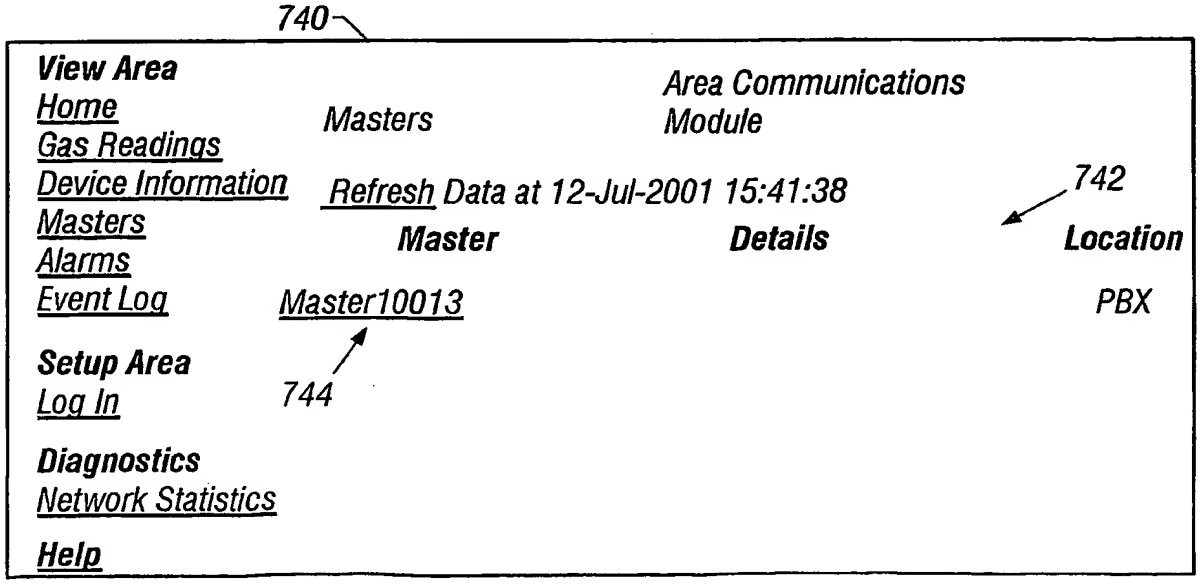

740
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Log In
Diagnostics
Network Statistics
Help
Masters
Area Communications Module
Refresh Data at 12-Jul-2001 15:41:38
742
Master
Details
Location
Master10013
PBX
744

FIG. 47

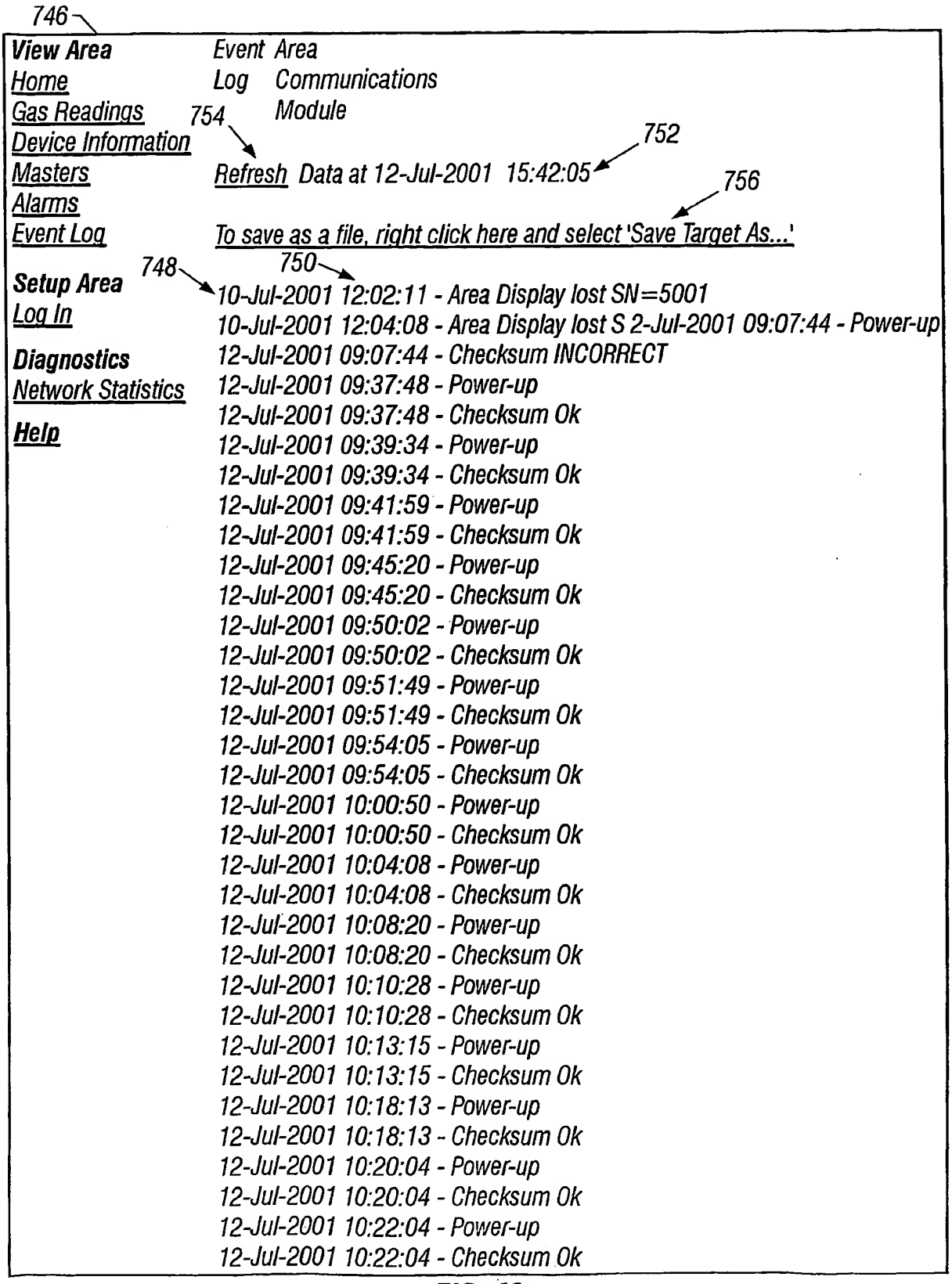

746
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Log In
Diagnostics
Network Statistics
Help
Event Area
Log Communications
Module
754
752
Refresh Data at 12-Jul-2001 15:42:05
756
To save as a file, right click here and select 'Save Target As...'
748
750
10-Jul-2001 12:02:11 - Area Display lost SN=5001
10-Jul-2001 12:04:08 - Area Display lost S 2-Jul-2001 09:07:44 - Power-up
12-Jul-2001 09:07:44 - Checksum INCORRECT
12-Jul-2001 09:37:48 - Power-up
12-Jul-2001 09:37:48 - Checksum Ok
12-Jul-2001 09:39:34 - Power-up
12-Jul-2001 09:39:34 - Checksum Ok
12-Jul-2001 09:41:59 - Power-up
12-Jul-2001 09:41:59 - Checksum Ok
12-Jul-2001 09:45:20 - Power-up
12-Jul-2001 09:45:20 - Checksum Ok
12-Jul-2001 09:50:02 - Power-up
12-Jul-2001 09:50:02 - Checksum Ok
12-Jul-2001 09:51:49 - Power-up
12-Jul-2001 09:51:49 - Checksum Ok
12-Jul-2001 09:54:05 - Power-up
12-Jul-2001 09:54:05 - Checksum Ok
12-Jul-2001 10:00:50 - Power-up
12-Jul-2001 10:00:50 - Checksum Ok
12-Jul-2001 10:04:08 - Power-up
12-Jul-2001 10:04:08 - Checksum Ok
12-Jul-2001 10:08:20 - Power-up
12-Jul-2001 10:08:20 - Checksum Ok
12-Jul-2001 10:10:28 - Power-up
12-Jul-2001 10:10:28 - Checksum Ok
12-Jul-2001 10:13:15 - Power-up
12-Jul-2001 10:13:15 - Checksum Ok
12-Jul-2001 10:18:13 - Power-up
12-Jul-2001 10:18:13 - Checksum Ok
12-Jul-2001 10:20:04 - Power-up
12-Jul-2001 10:20:04 - Checksum Ok
12-Jul-2001 10:22:04 - Power-up
12-Jul-2001 10:22:04 - Checksum Ok

FIG. 48

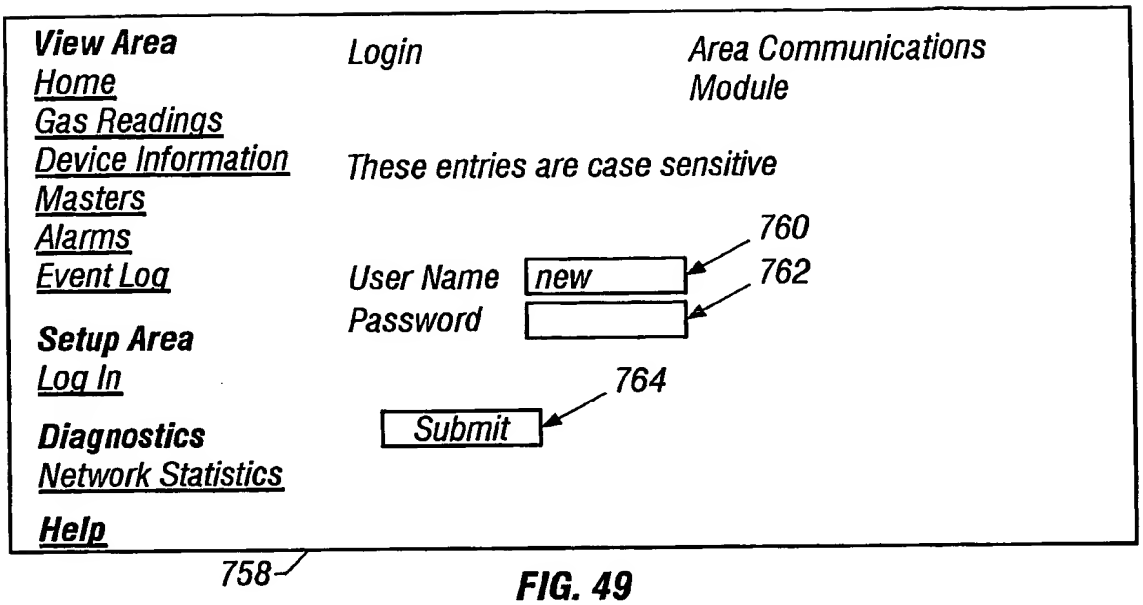

View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Log In
Diagnostics
Network Statistics
Help
Login
Area Communications Module
These entries are case sensitive
User Name
new
Password
Submit
760
762
764
758

FIG. 49

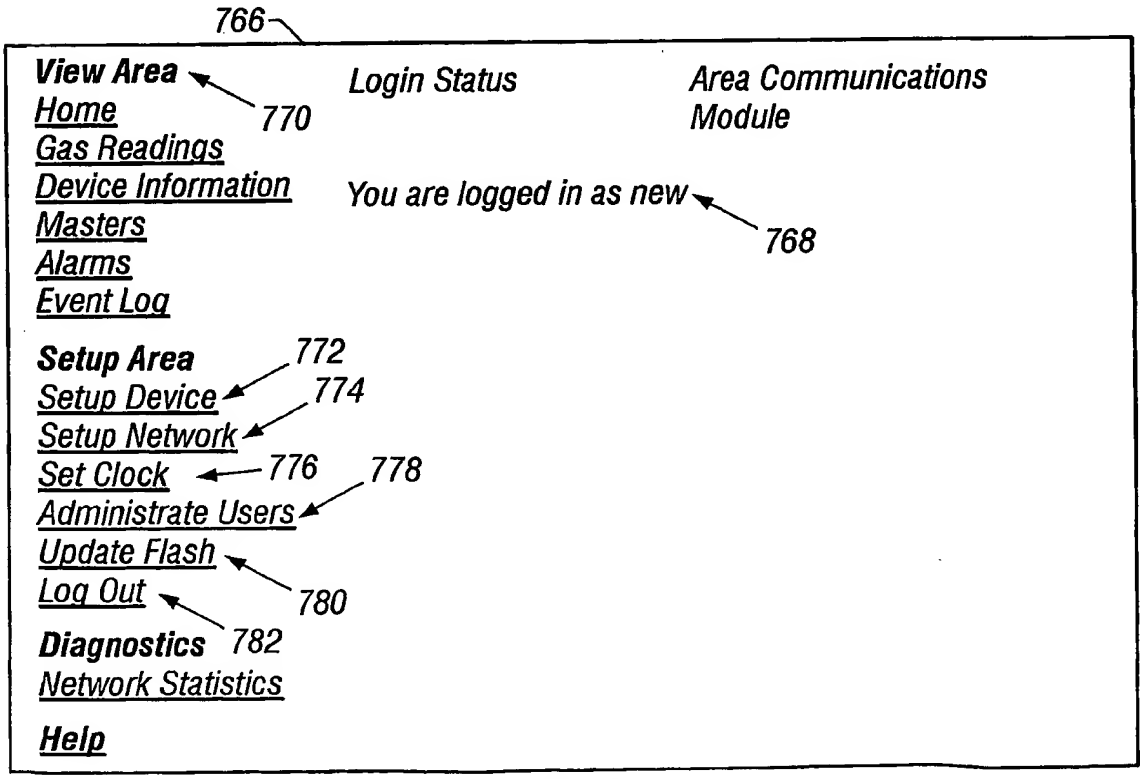

766
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Login Status
Area Communications Module
You are logged in as new
770
768
772
774
776
778
780
782

FIG. 50

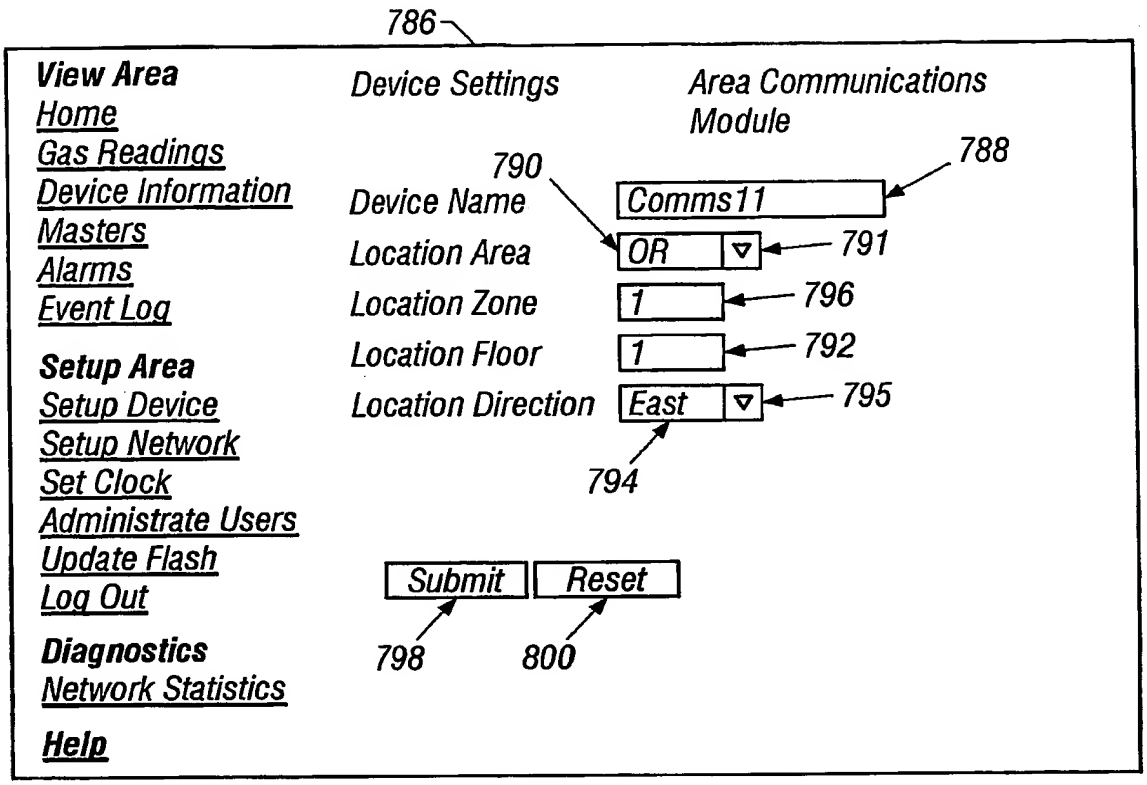

786
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Device Settings
Area Communications Module
790
788
Device Name
Comms11
Location Area
OR
791
Location Zone
1
796
Location Floor
1
792
Location Direction
East
795
794
Submit
Reset
798
800

FIG. 51

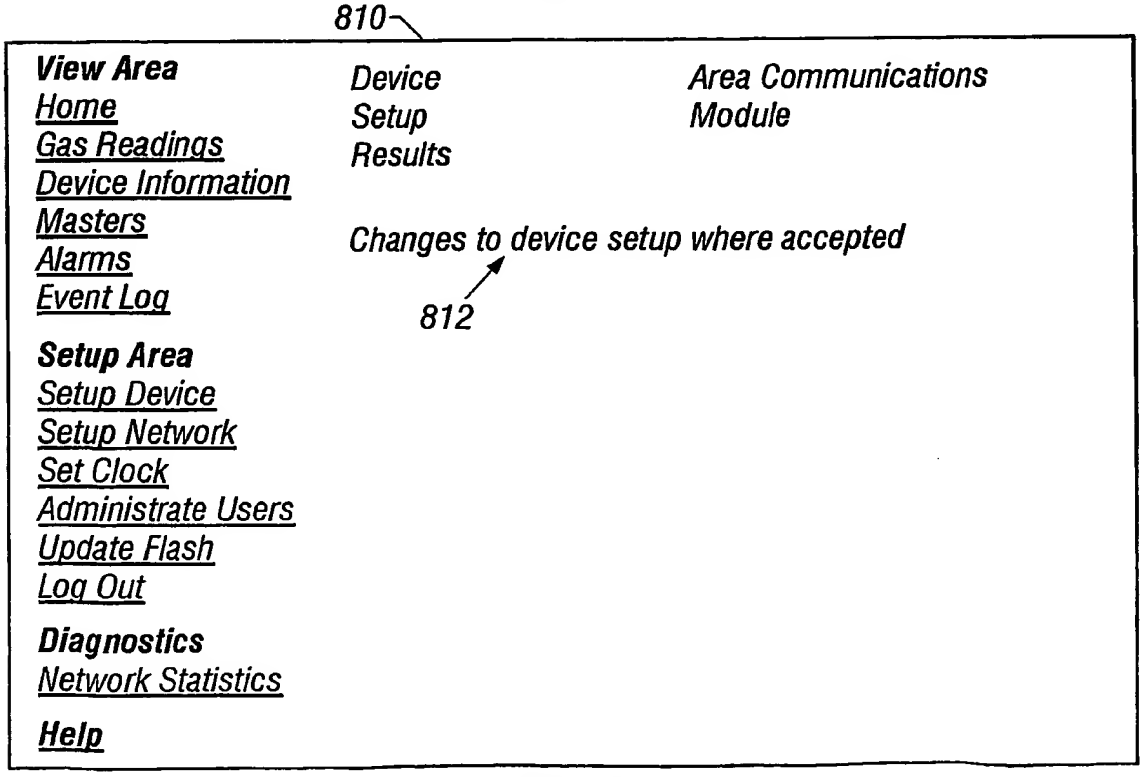

810
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Device Setup Results
Area Communications Module
Changes to device setup where accepted
812

FIG. 52

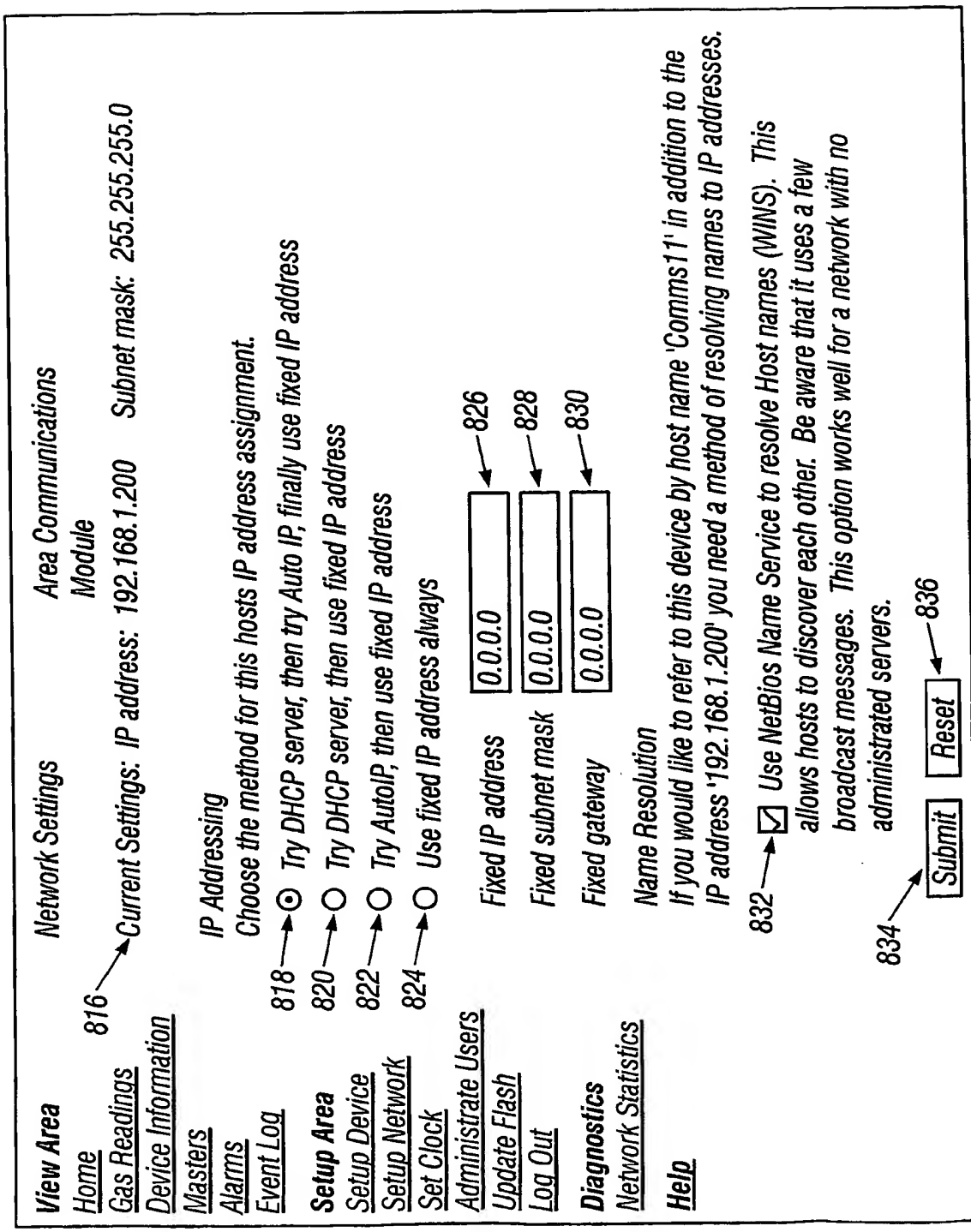

View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Network Settings
Area Communications Module
816
Current Settings: IP address: 192.168.1.200 Subnet mask: 255.255.255.0
IP Addressing
Choose the method for this hosts IP address assignment.
818 Try DHCP server, then try Auto IP, finally use fixed IP address
820 Try DHCP server, then use fixed IP address
822 Try AutoIP, then use fixed IP address
824 Use fixed IP address always
Fixed IP address 0.0.0.0 826
Fixed subnet mask 0.0.0.0 828
Fixed gateway 0.0.0.0 830
Name Resolution
If you would like to refer to this device by host name 'Comms11' in addition to the IP address '192.168.1.200' you need a method of resolving names to IP addresses.
832 Use NetBios Name Service to resolve Host names (WINS). This allows hosts to discover each other. Be aware that it uses a few broadcast messages. This option works well for a network with no administrated servers.
834
Submit
Reset
836
814

FIG. 53

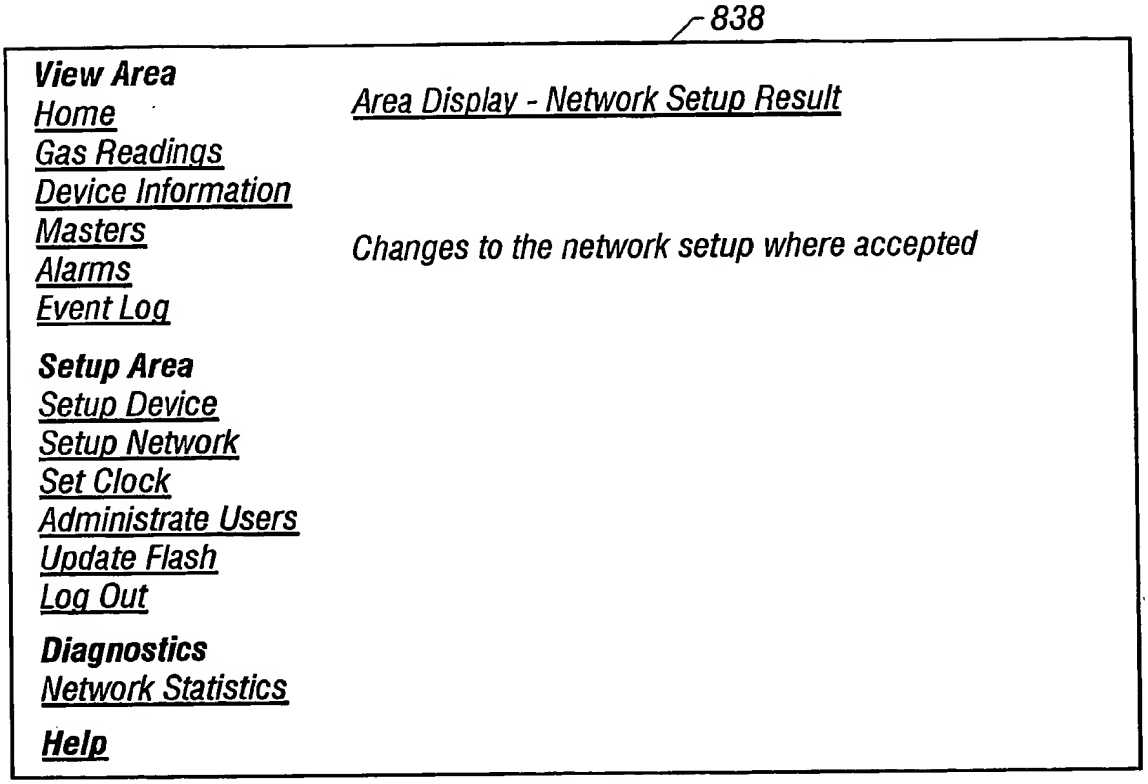

838
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Area Display - Network Setup Result
Changes to the network setup where accepted

FIG. 54

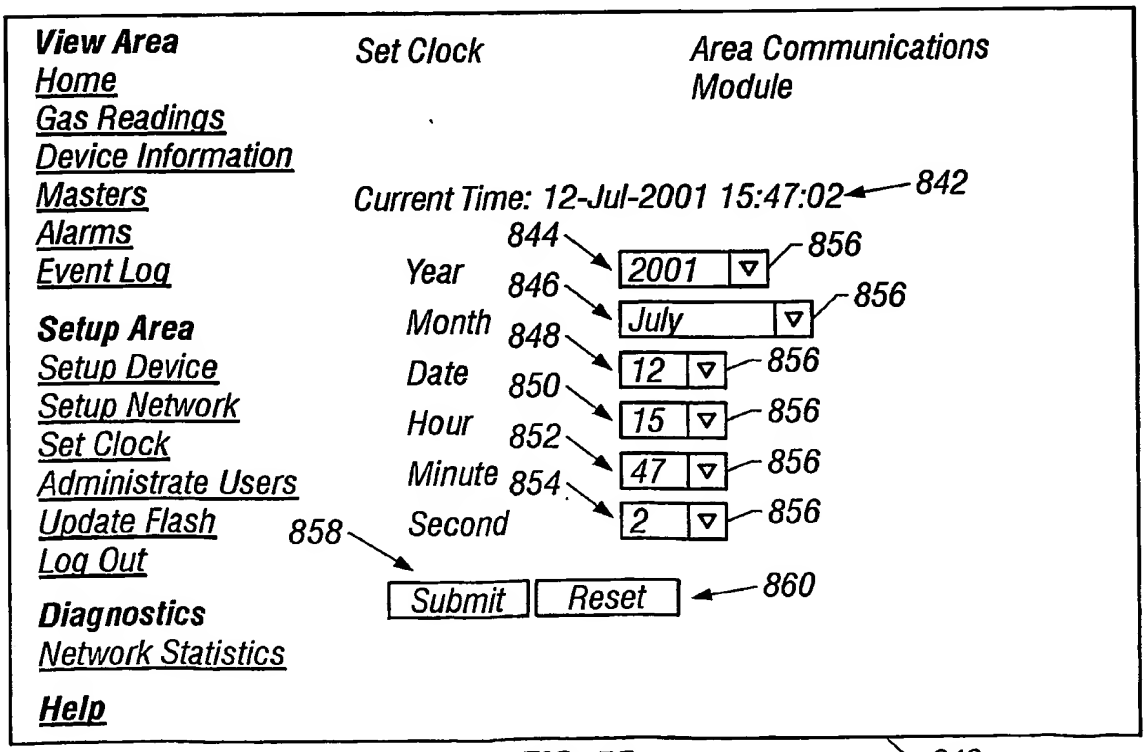

View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Set Clock
Area Communications Module
Current Time: 12-Jul-2001 15:47:02
842
Year
844
2001
856
Month
846
July
856
Date
848
12
856
Hour
850
15
856
Minute
852
47
856
Second
854
2
856
858
Submit
Reset
860
840

FIG. 55

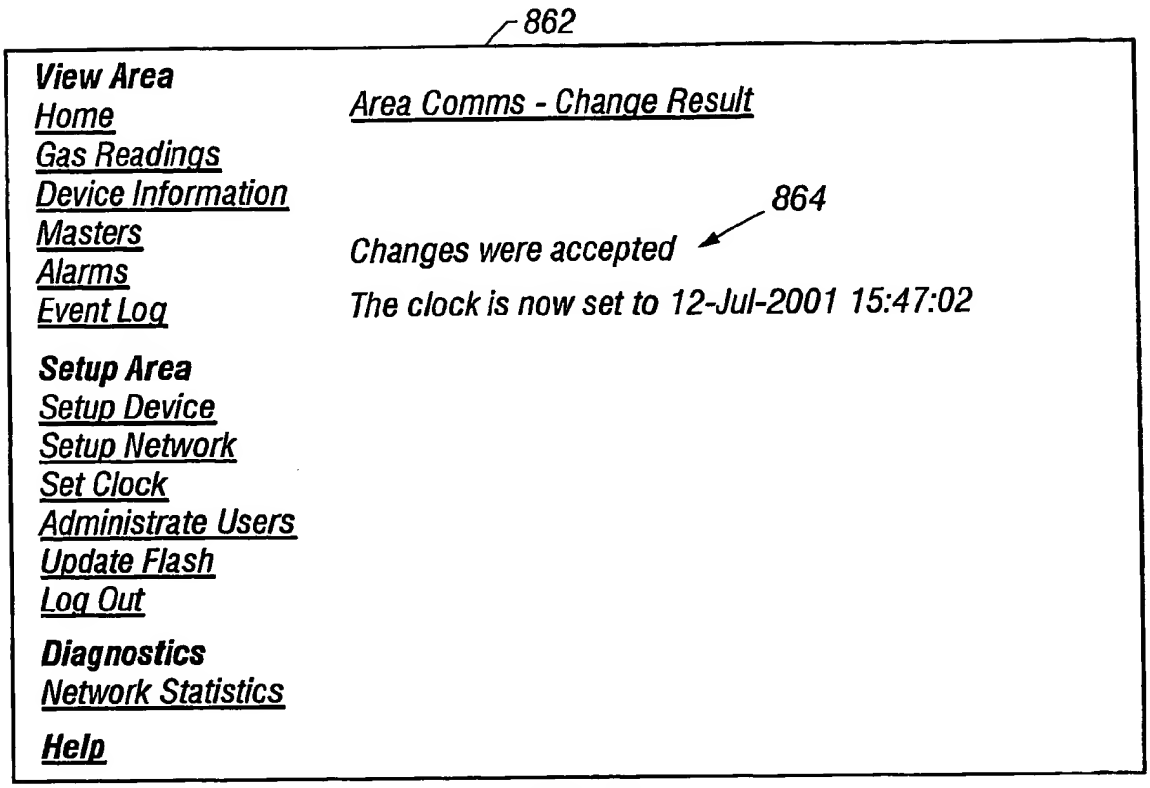

862
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Area Comms - Change Result
864
Changes were accepted
The clock is now set to 12-Jul-2001 15:47:02

FIG. 56

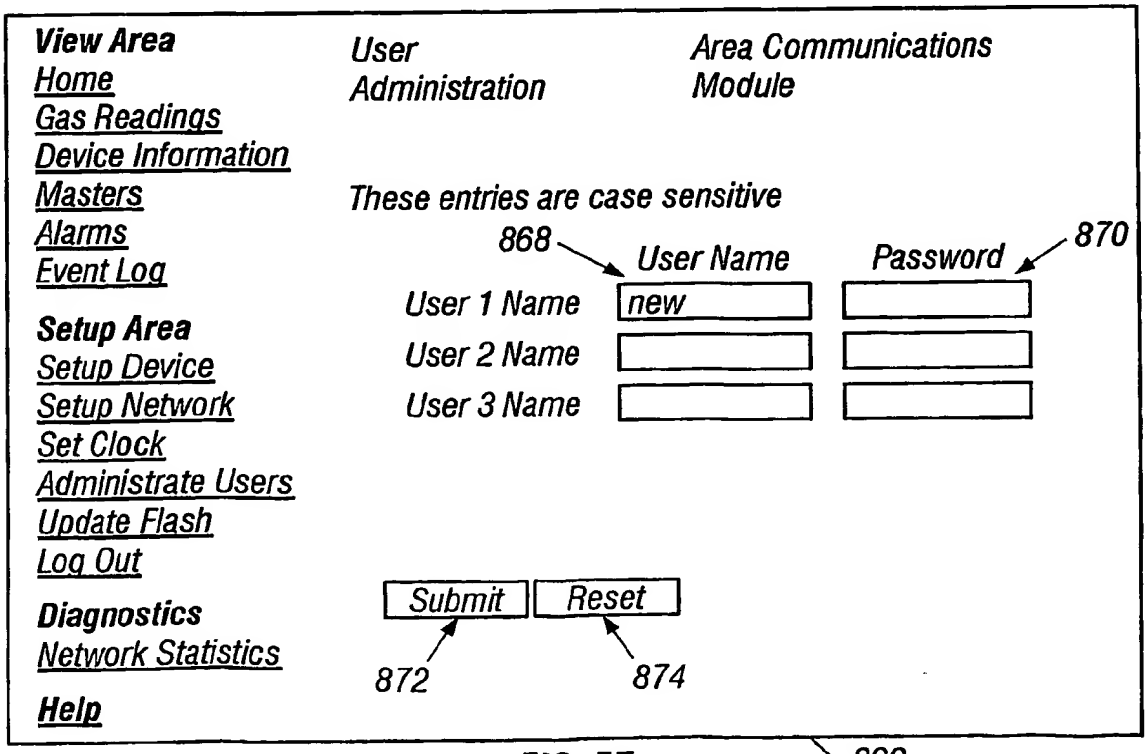

View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
User Administration
Area Communications Module
These entries are case sensitive
868
User Name
Password
870
User 1 Name
new
User 2 Name
User 3 Name
Submit
Reset
872
874
866

FIG. 57

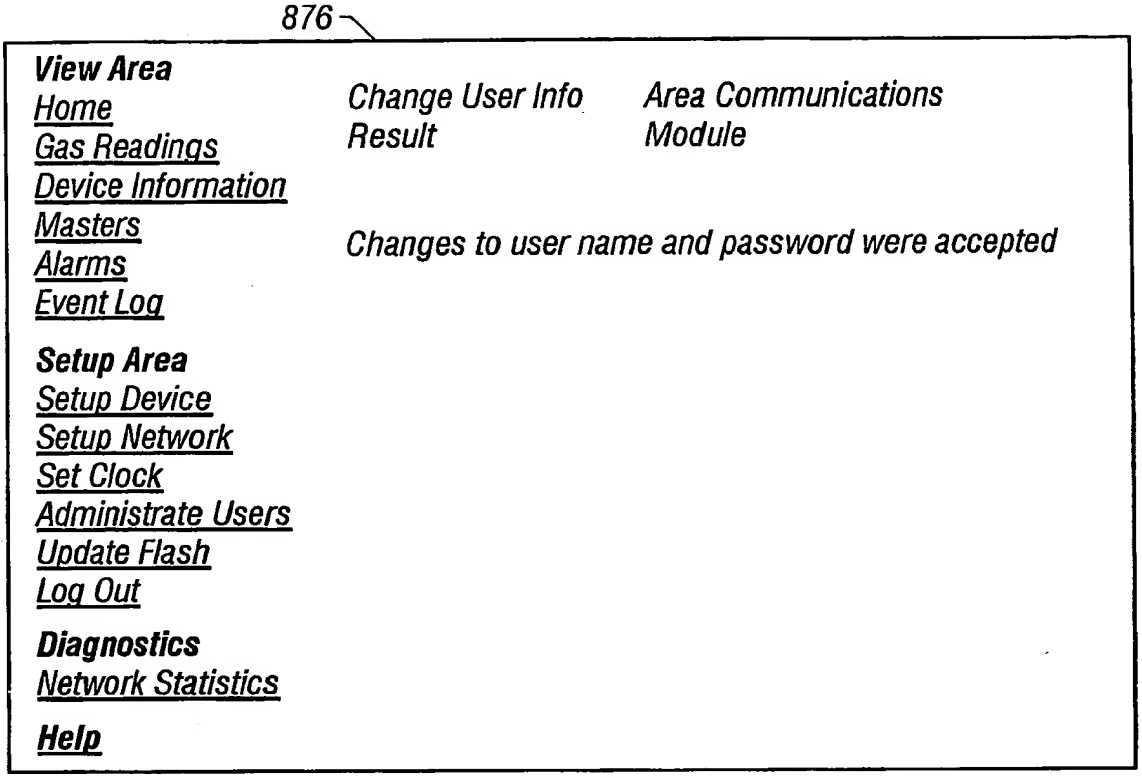

876
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Change User Info Result
Area Communications Module
Changes to user name and password were accepted

FIG. 58

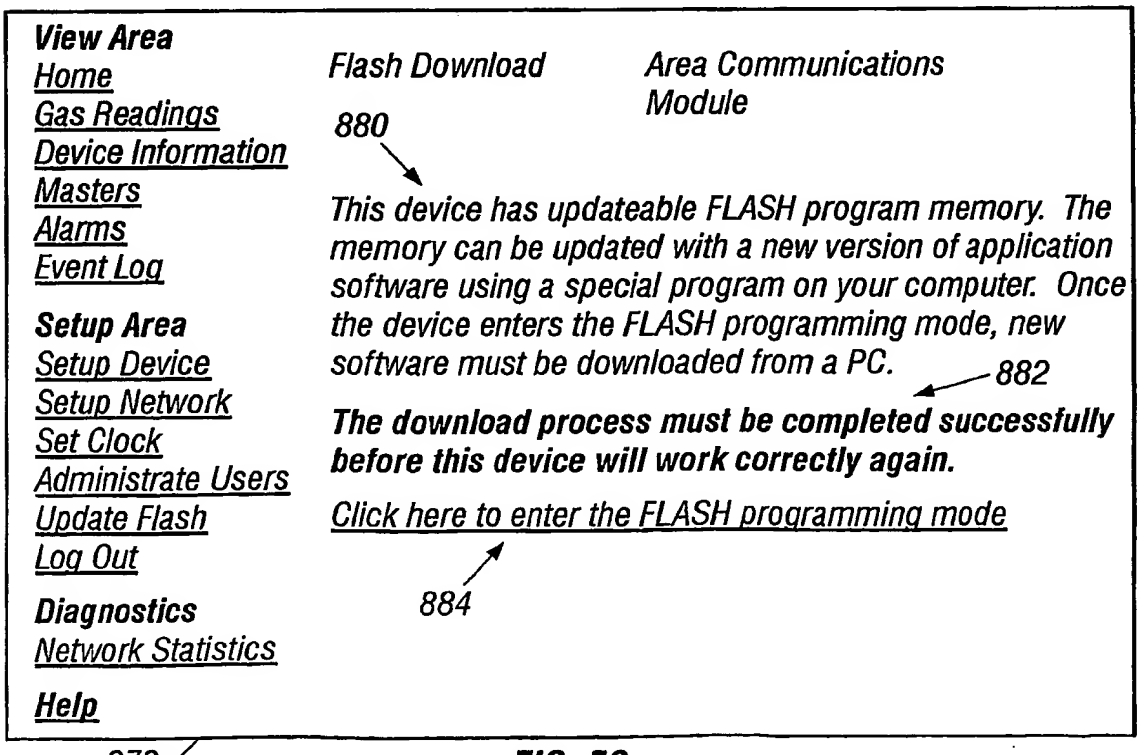

View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
878
Flash Download
Area Communications Module
880
This device has updateable FLASH program memory. The memory can be updated with a new version of application software using a special program on your computer. Once the device enters the FLASH programming mode, new software must be downloaded from a PC.
882
The download process must be completed successfully before this device will work correctly again.
Click here to enter the FLASH programming mode
884

FIG. 59

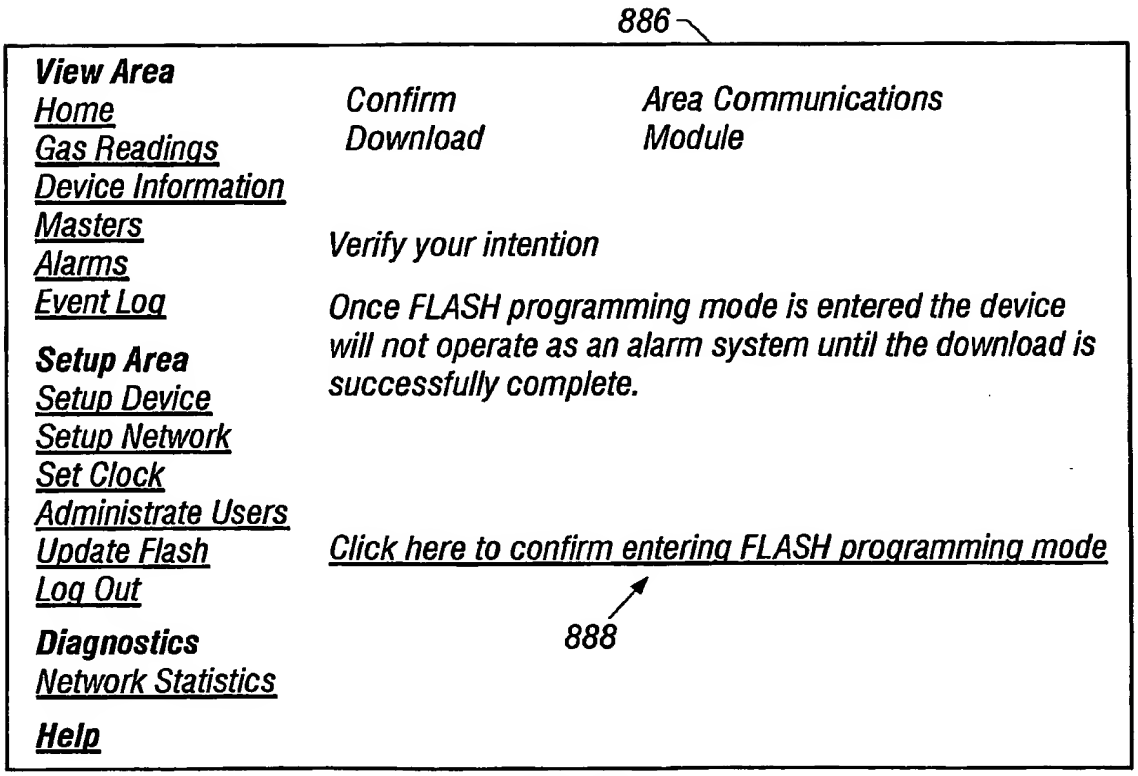

886
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Confirm Download
Area Communications Module
Verify your intention
Once FLASH programming mode is entered the device will not operate as an alarm system until the download is successfully complete.
Click here to confirm entering FLASH programming mode
888

FIG. 60

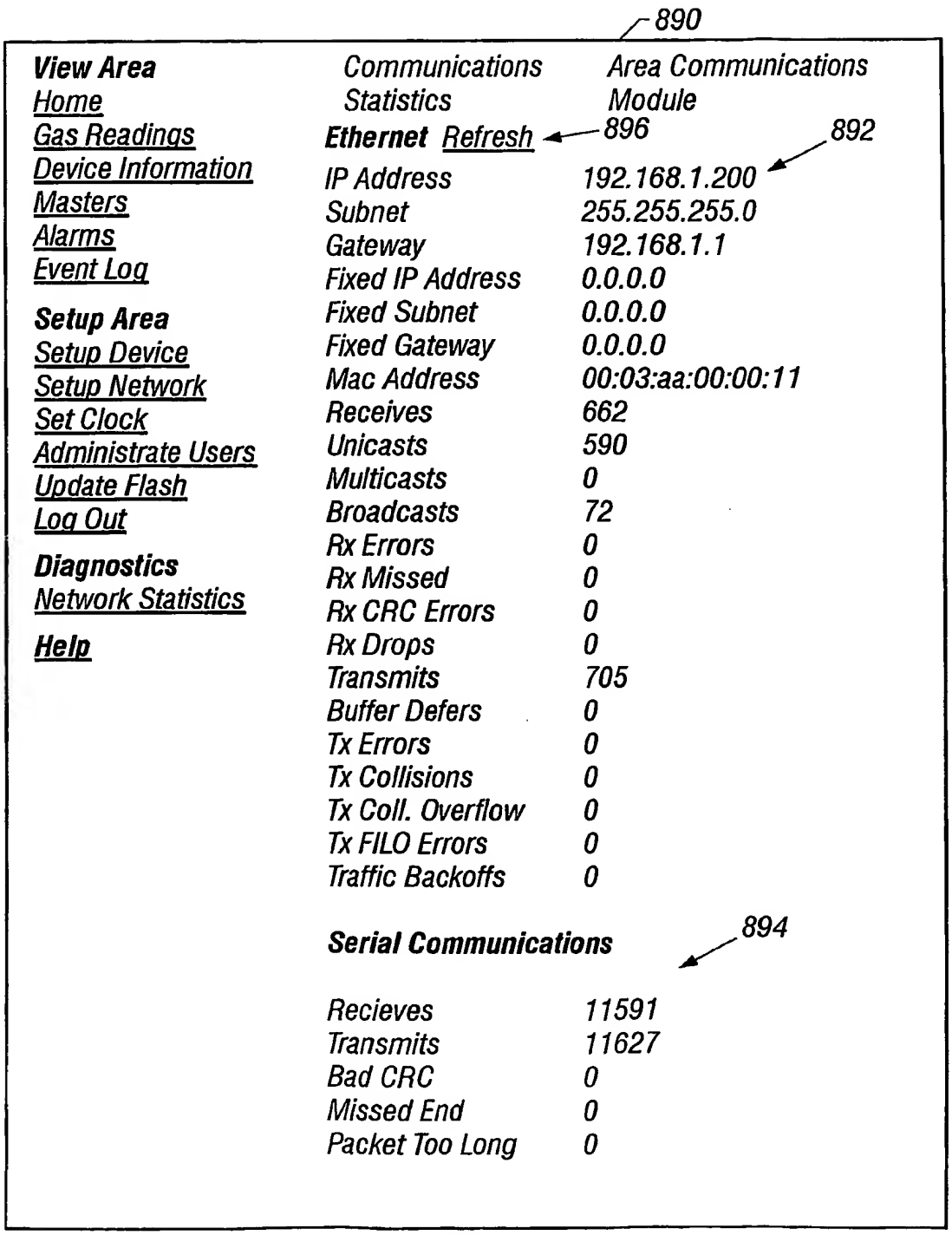

890
View Area
Home
Gas Readings
Device Information
Masters
Alarms
Event Log
Setup Area
Setup Device
Setup Network
Set Clock
Administrate Users
Update Flash
Log Out
Diagnostics
Network Statistics
Help
Communications Statistics
Area Communications Module
Ethernet Refresh
896
892
IP Address 192.168.1.200
Subnet 255.255.255.0
Gateway 192.168.1.1
Fixed IP Address 0.0.0.0
Fixed Subnet 0.0.0.0
Fixed Gateway 0.0.0.0
Mac Address 00:03:aa:00:00:11
Receives 662
Unicasts 590
Multicasts 0
Broadcasts 72
Rx Errors 0
Rx Missed 0
Rx CRC Errors 0
Rx Drops 0
Transmits 705
Buffer Defers 0
Tx Errors 0
Tx Collisions 0
Tx Coll. Overflow 0
Tx FILO Errors 0
Traffic Backoffs 0
894
Serial Communications
Recieves 11591
Transmits 11627
Bad CRC 0
Missed End 0
Packet Too Long 0

FIG. 61

FIG. 62

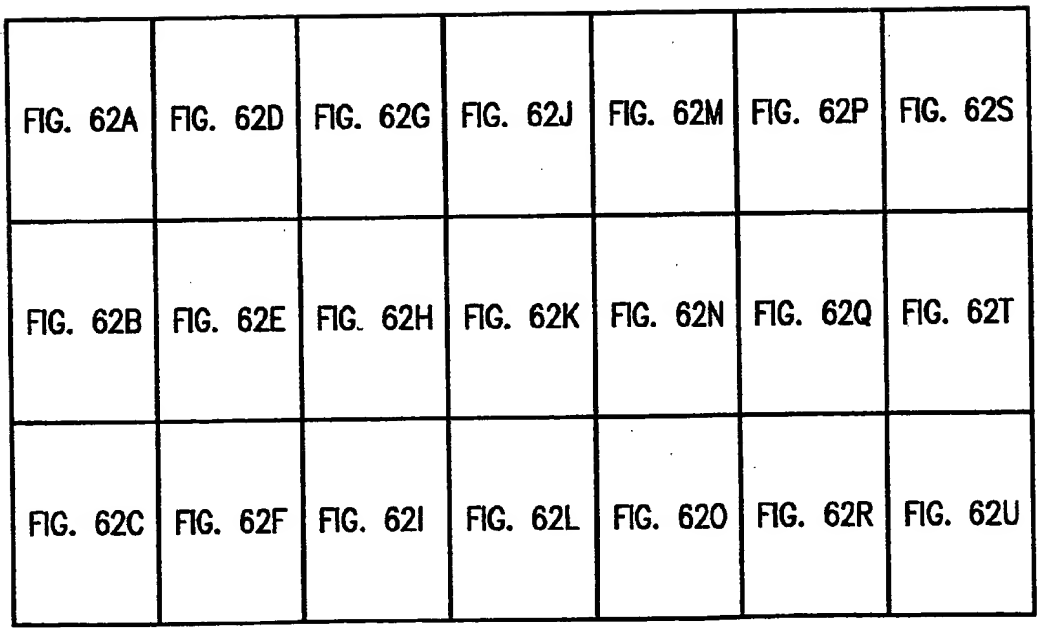


FIG. 62A
FIG. 62D
FIG. 62G
FIG. 62J
FIG. 62M
FIG. 62P
FIG. 62S
FIG. 62B
FIG. 62E
FIG. 62H
FIG. 62K
FIG. 62N
FIG. 62Q
FIG. 62T
FIG. 62C
FIG. 62F
FIG. 62I
FIG. 62L
FIG. 62O
FIG. 62R
FIG. 62U

FIG. 62A

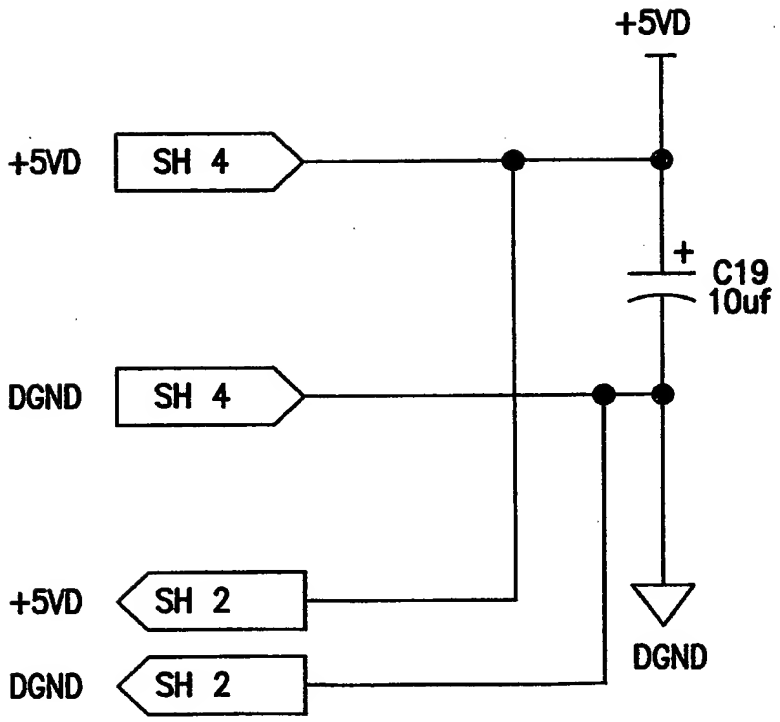


FIG. 62B

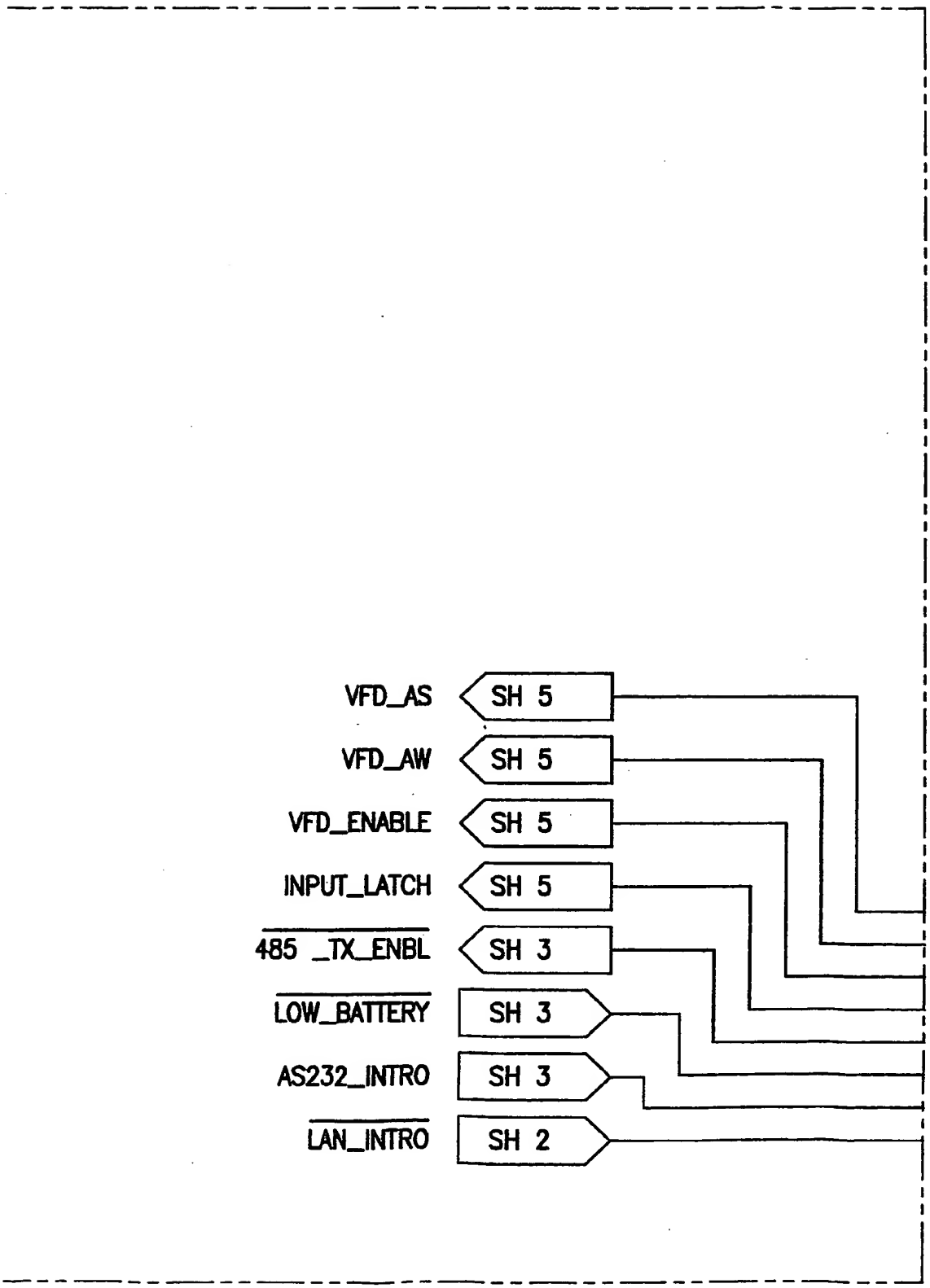

VFD_AS
SH 5
VFD_AW
SH 5
VFD_ENABLE
SH 5
INPUT_LATCH
SH 5
485 _TX_ENBL
SH 3
LOW_BATTERY
SH 3
AS232_INTRO
SH 3
LAN_INTRO
SH 2

FIG. 62C

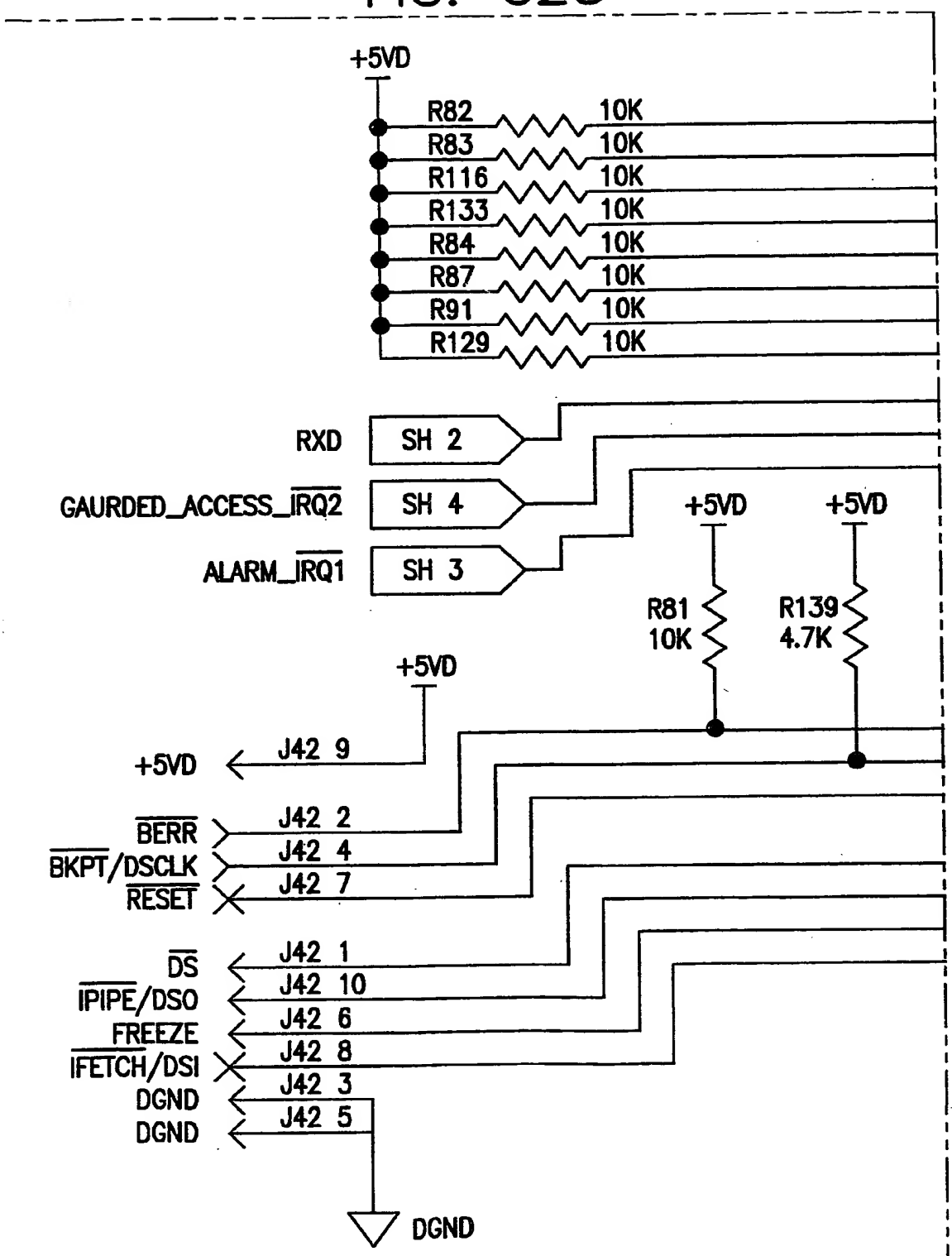

+5VD
R82 10K
R83 10K
R116 10K
R133 10K
R84 10K
R87 10K
R91 10K
R129 10K
RXD
SH 2
GAURDED_ACCESS_IRQ2
SH 4
ALARM_IRQ1
SH 3
+5VD
+5VD
R81 10K
R139 4.7K
+5VD
+5VD
J42 9
BERR
J42 2
BKPT/DSCLK
J42 4
RESET
J42 7
DS
J42 1
IPIPE/DSO
J42 10
FREEZE
J42 6
IFETCH/DSI
J42 8
DGND
J42 3
DGND
J42 5
DGND

FIG. 62D

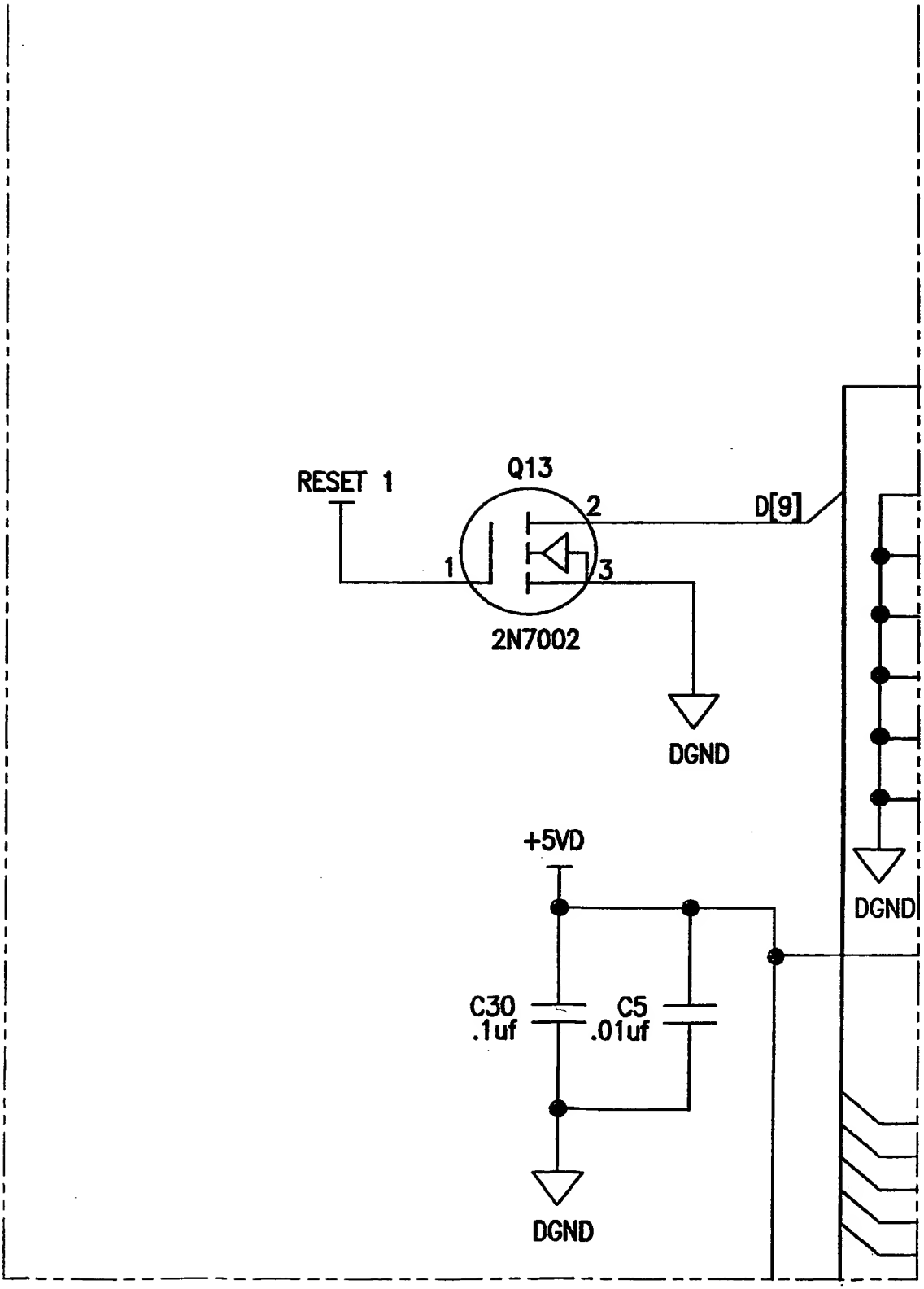


FIG. 62E

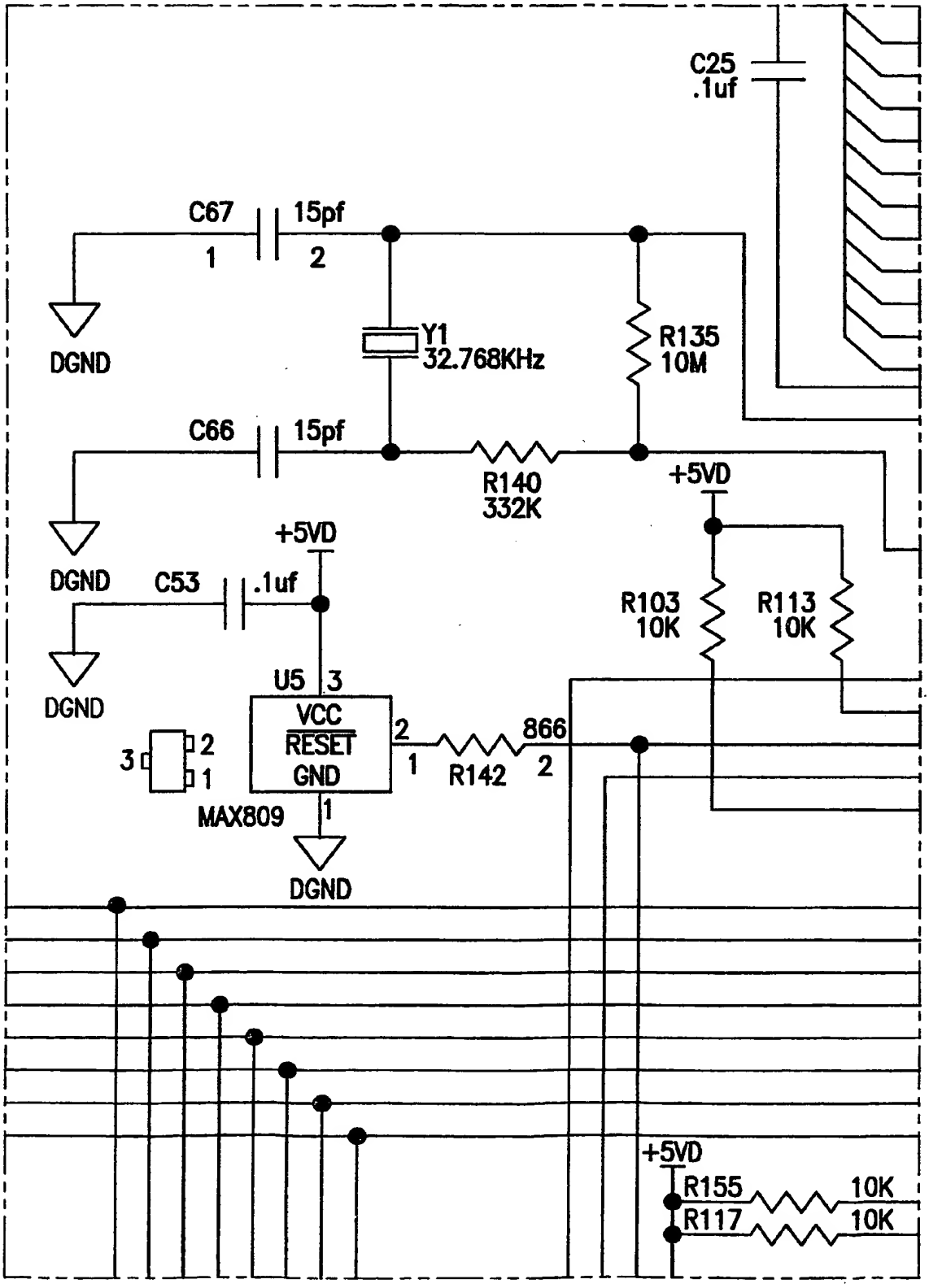

C25
.1uf
C67
15pf
1
2
DGND
Y1
32.768KHz
R135
10M
C66
15pf
R140
332K
+5VD
DGND
C53
.1uf
+5VD
R103
10K
R113
10K
DGND
U5
3
VCC
RESET
GND
2
1
R142
866
2
3
2
1
MAX809
1
DGND
+5VD
R155
10K
R117
10K

FIG. 62F

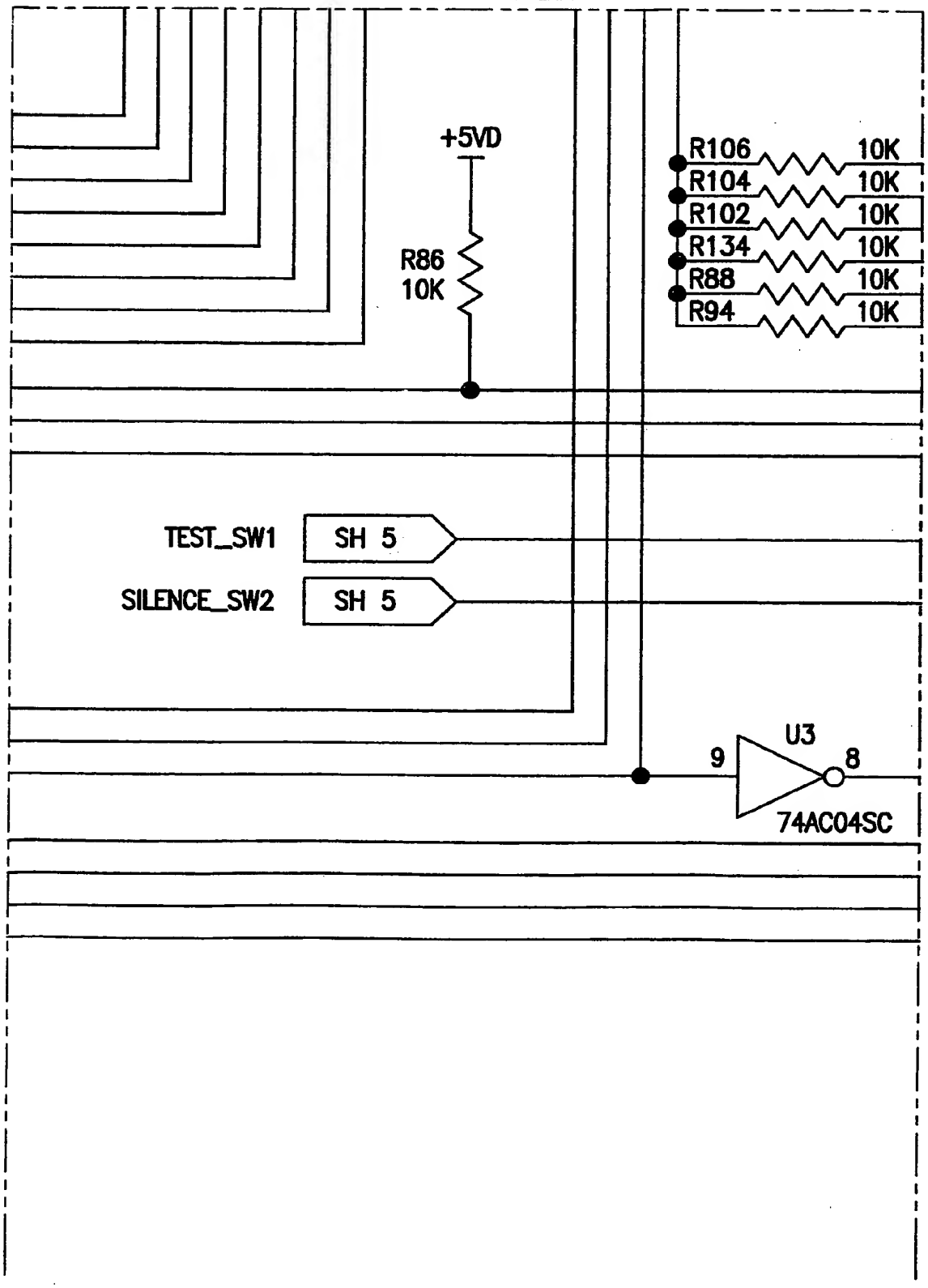

+5VD
R86
10K
R106
R104
R102
R134
R88
R94
10K
TEST_SW1
SILENCE_SW2
SH 5
SH 5
U3
9
8
74AC04SC

FIG. 62G

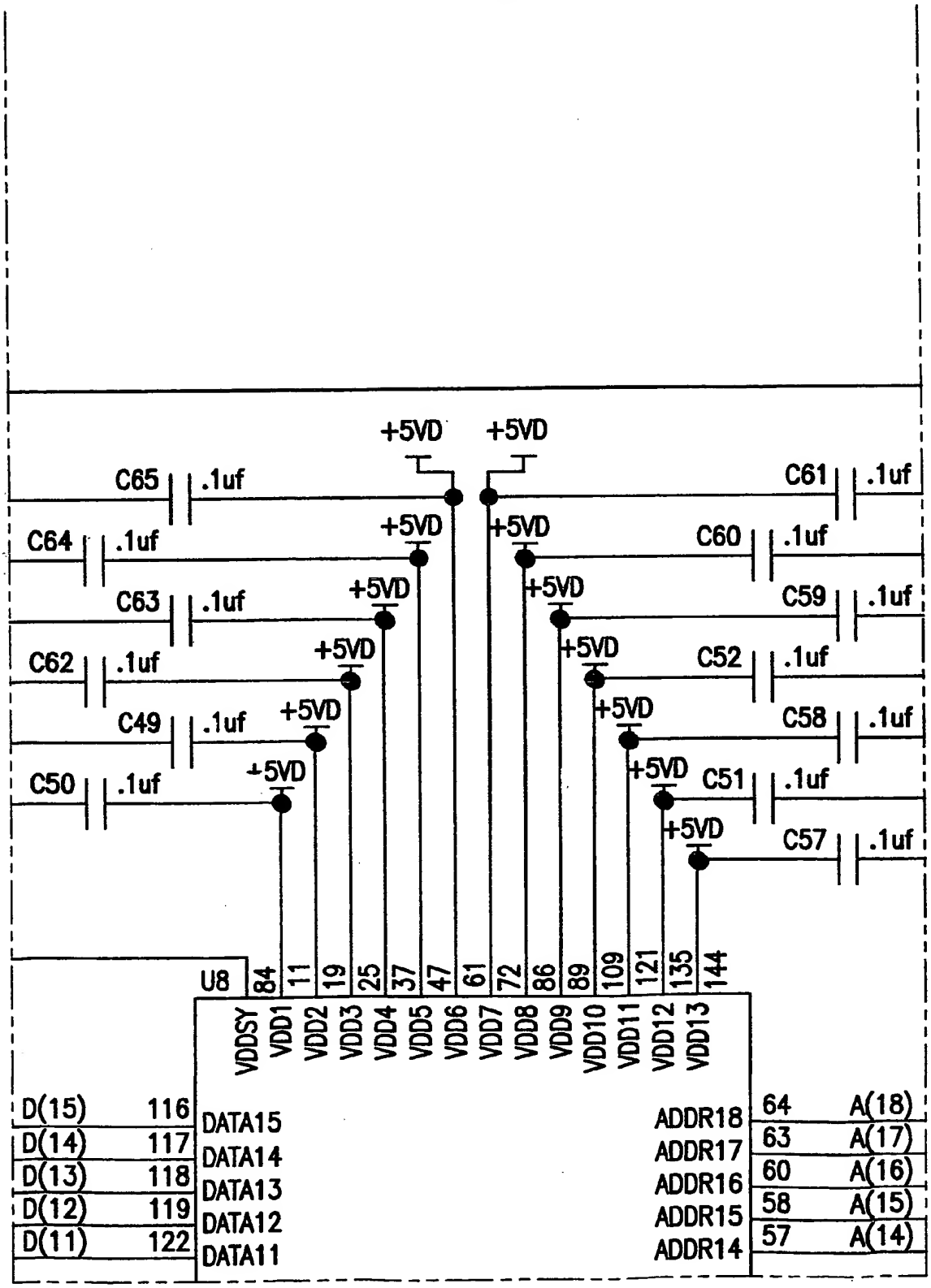

+5VD
C65 .1uf
C61 .1uf
C64 .1uf
C60 .1uf
C63 .1uf
C59 .1uf
C62 .1uf
C52 .1uf
C49 .1uf
C58 .1uf
C50 .1uf
C51 .1uf
C57 .1uf
U8
84
11
19
25
37
47
61
72
86
89
109
121
135
144
VDDSY
VDD1
VDD2
VDD3
VDD4
VDD5
VDD6
VDD7
VDD8
VDD9
VDD10
VDD11
VDD12
VDD13
D(15) 116 DATA15
D(14) 117 DATA14
D(13) 118 DATA13
D(12) 119 DATA12
D(11) 122 DATA11
ADDR18 64 A(18)
ADDR17 63 A(17)
ADDR16 60 A(16)
ADDR15 58 A(15)
ADDR14 57 A(14)

FIG. 62H

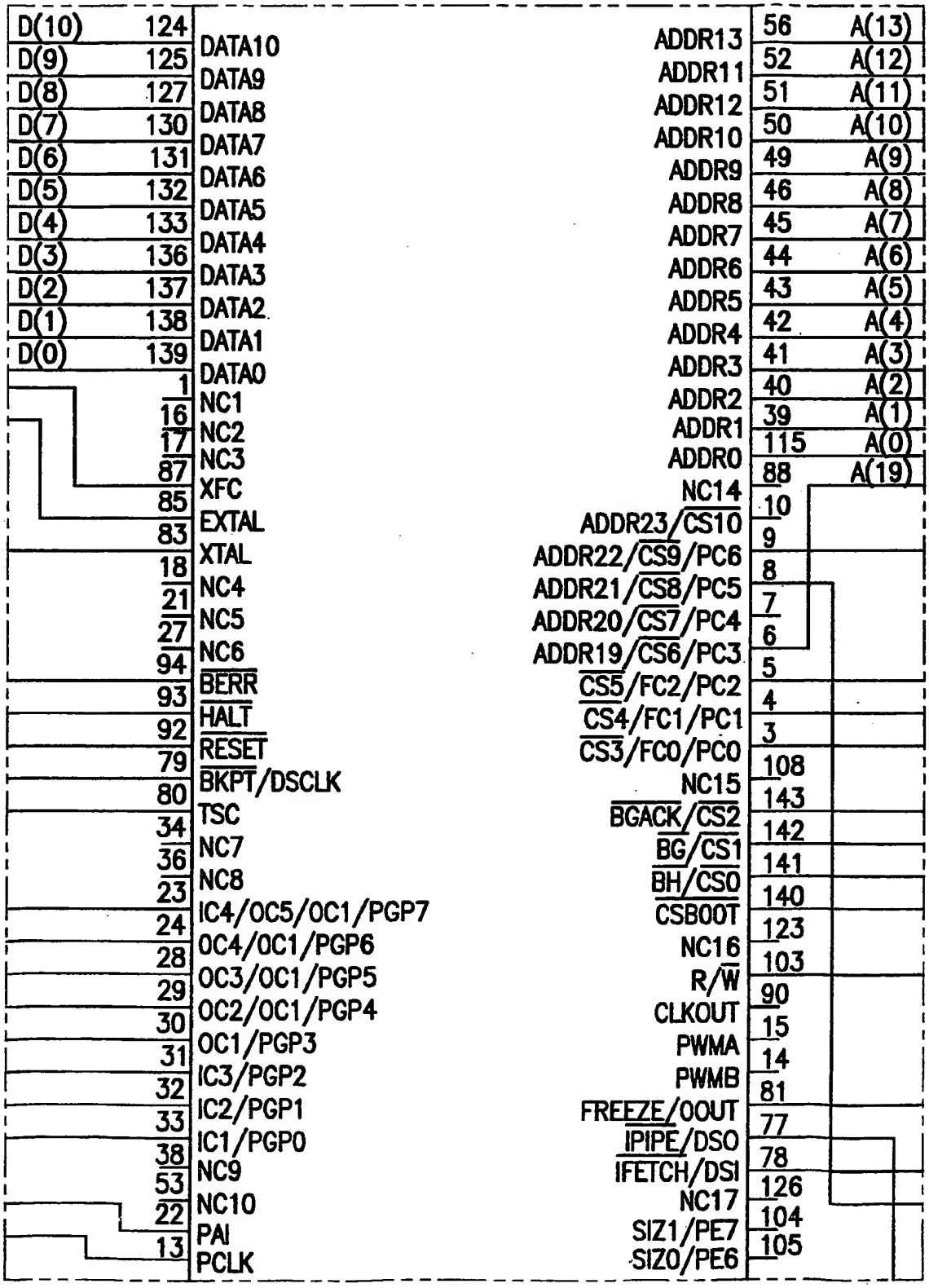

D(10) 124
D(9) 125
D(8) 127
D(7) 130
D(6) 131
D(5) 132
D(4) 133
D(3) 136
D(2) 137
D(1) 138
D(0) 139
DATA10
DATA9
DATA8
DATA7
DATA6
DATA5
DATA4
DATA3
DATA2
DATA1
DATA0
1 NC1
16 NC2
17 NC3
87 XFC
85 EXTAL
83 XTAL
18 NC4
21 NC5
27 NC6
94 BERR
93 HALT
92 RESET
79 BKPT/DSCLK
80 TSC
34 NC7
36 NC8
23 IC4/OC5/OC1/PGP7
24 OC4/OC1/PGP6
28 OC3/OC1/PGP5
29 OC2/OC1/PGP4
30 OC1/PGP3
31 IC3/PGP2
32 IC2/PGP1
33 IC1/PGP0
38 NC9
53 NC10
22 PAI
13 PCLK
ADDR13 56 A(13)
ADDR11 52 A(12)
ADDR12 51 A(11)
ADDR10 50 A(10)
ADDR9 49 A(9)
ADDR8 46 A(8)
ADDR7 45 A(7)
ADDR6 44 A(6)
ADDR5 43 A(5)
ADDR4 42 A(4)
ADDR3 41 A(3)
ADDR2 40 A(2)
ADDR1 39 A(1)
ADDR0 115 A(0)
NC14 88 A(19)
ADDR23/CS10 10
ADDR22/CS9/PC6 9
ADDR21/CS8/PC5 8
ADDR20/CS7/PC4 7
ADDR19/CS6/PC3 6
CS5/FC2/PC2 5
CS4/FC1/PC1 4
CS3/FC0/PC0 3
NC15 108
BGACK/CS2 143
BG/CS1 142
BH/CS0 141
CSBOOT 140
NC16 123
R/W 103
CLKOUT 90
PWMA 15
PWMB 14
FREEZE/OOUT 81
IPIPE/DSO 77
IFETCH/DSI 78
NC17 126
SIZ1/PE7 104
SIZ0/PE6 105

FIG. 621

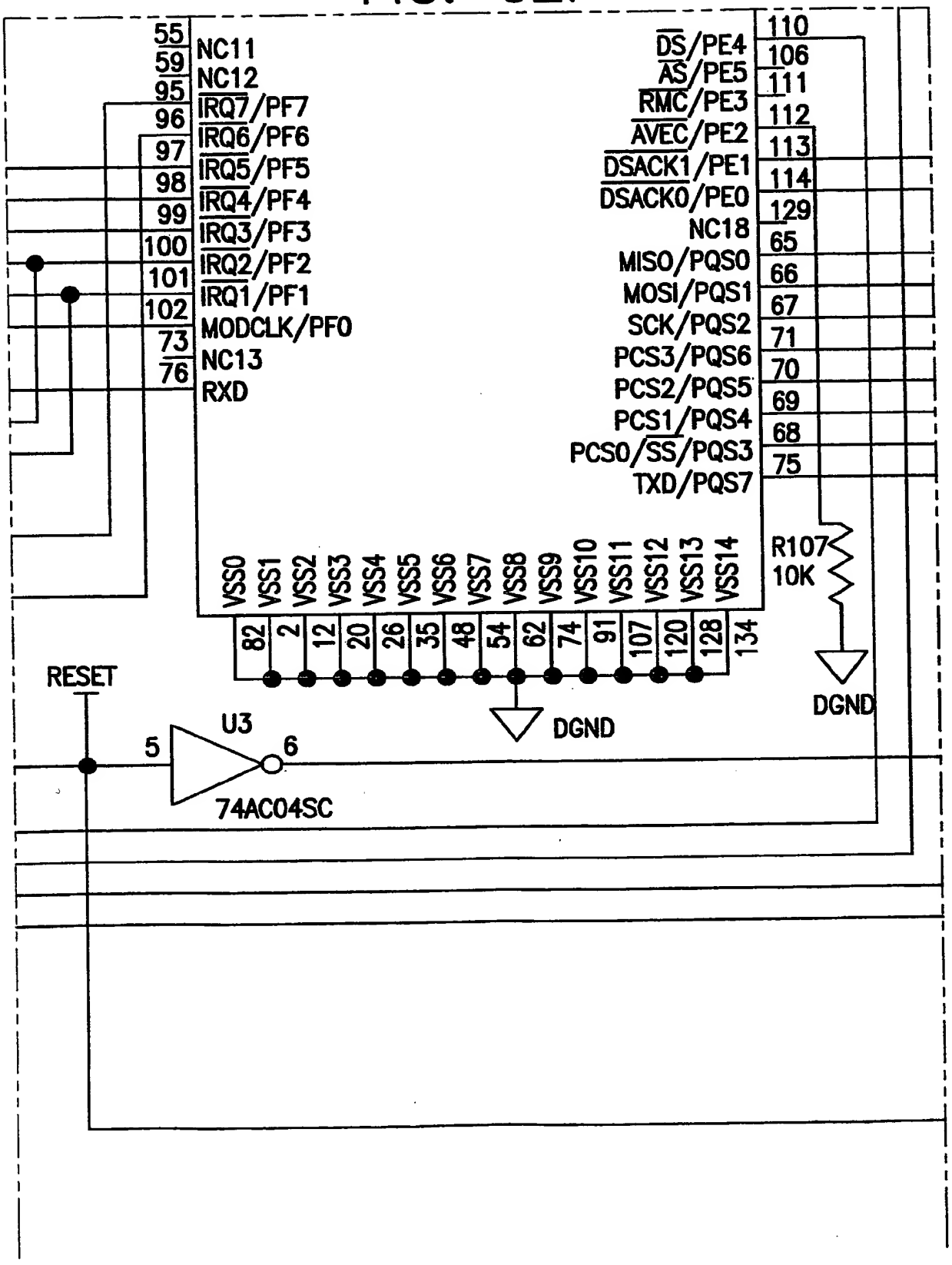

55 NC11
59 NC12
95 IRQ7/PF7
96 IRQ6/PF6
97 IRQ5/PF5
98 IRQ4/PF4
99 IRQ3/PF3
100 IRQ2/PF2
101 IRQ1/PF1
102 MODCLK/PF0
73 NC13
76 RXD
110 DS/PE4
106 AS/PE5
111 RMC/PE3
112 AVEC/PE2
113 DSACK1/PE1
114 DSACK0/PE0
129 NC18
65 MISO/PQS0
66 MOSI/PQS1
67 SCK/PQS2
71 PCS3/PQS6
70 PCS2/PQS5
69 PCS1/PQS4
68 PCS0/SS/PQS3
75 TXD/PQS7
VSS0 VSS1 VSS2 VSS3 VSS4 VSS5 VSS6 VSS7 VSS8 VSS9 VSS10 VSS11 VSS12 VSS13 VSS14
82 2 12 20 26 35 48 54 62 74 91 107 120 128 134
DGND
R107
10K
DGND
RESET
U3
5
6
74AC04SC

FIG. 62J

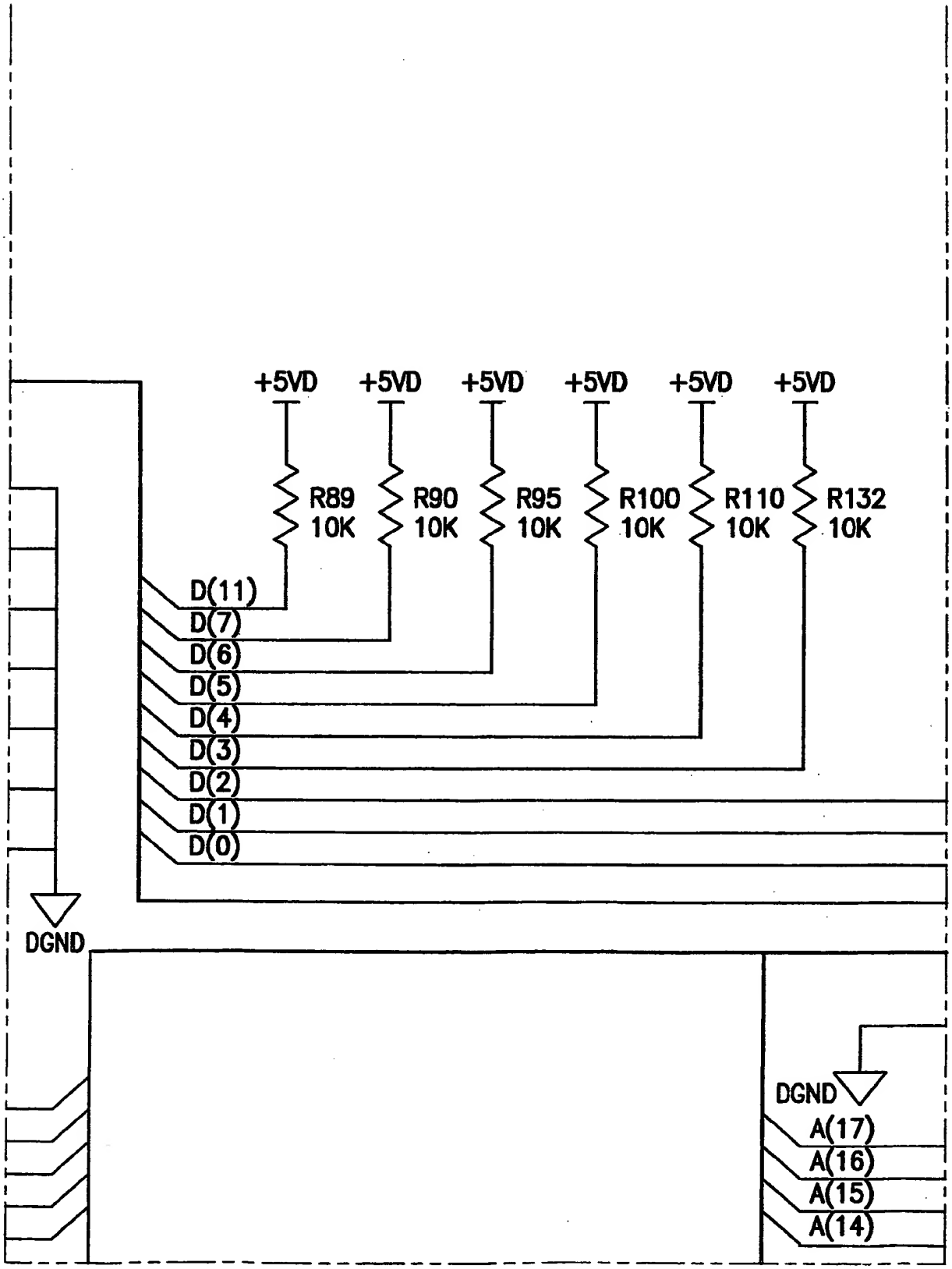

+5VD
+5VD
+5VD
+5VD
+5VD
+5VD
R89
10K
R90
10K
R95
10K
R100
10K
R110
10K
R132
10K
D(11)
D(7)
D(6)
D(5)
D(4)
D(3)
D(2)
D(1)
D(0)
DGND
DGND
A(17)
A(16)
A(15)
A(14)

FIG. 62K

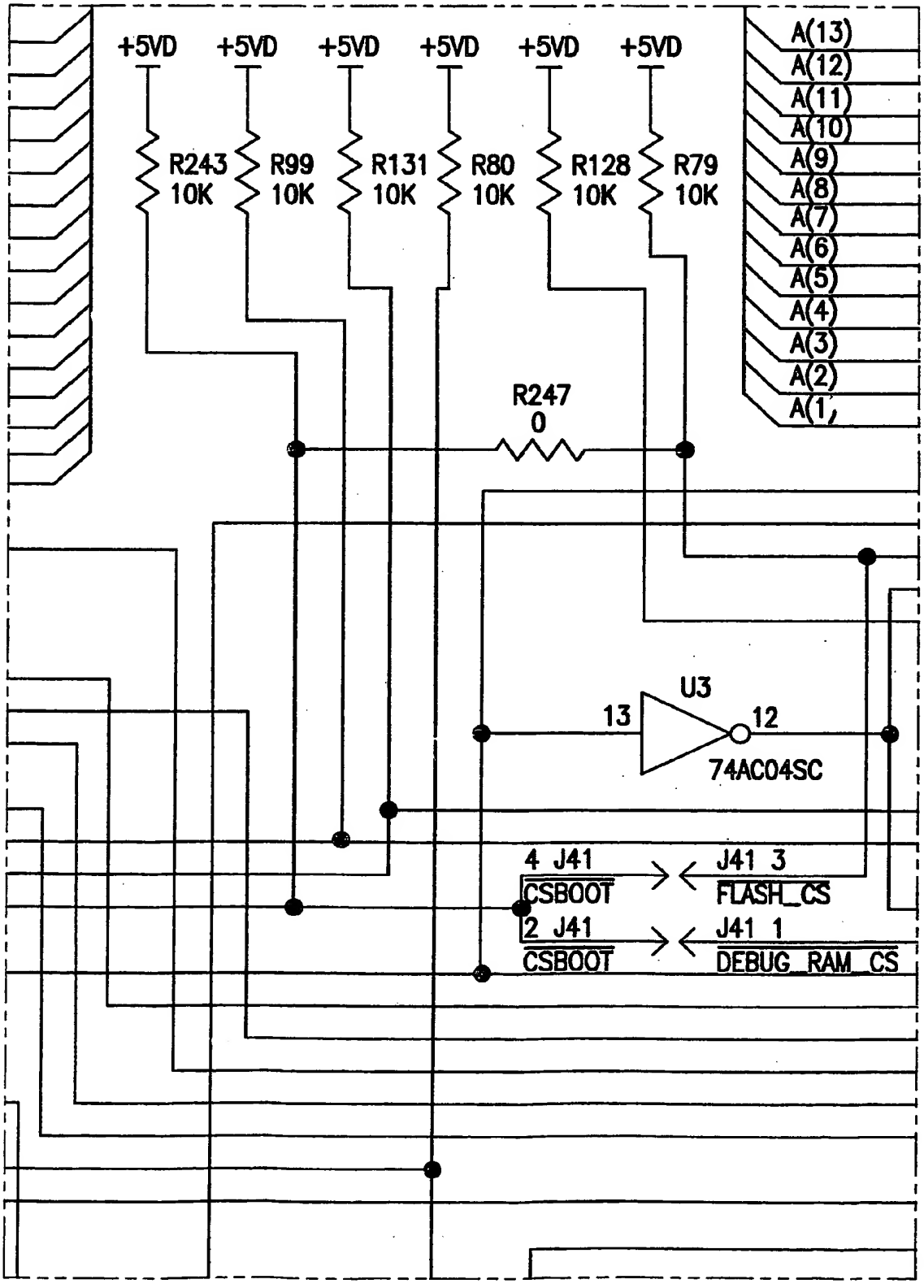

+5VD
+5VD
+5VD
+5VD
+5VD
+5VD
R243
10K
R99
10K
R131
10K
R80
10K
R128
10K
R79
10K
A(13)
A(12)
A(11)
A(10)
A(9)
A(8)
A(7)
A(6)
A(5)
A(4)
A(3)
A(2)
A(1)
R247
0
U3
13
12
74AC04SC
4 J41
CSBOOT
J41 3
FLASH_CS
2 J41
CSBOOT
J41 1
DEBUG_RAM_CS

FIG. 62L

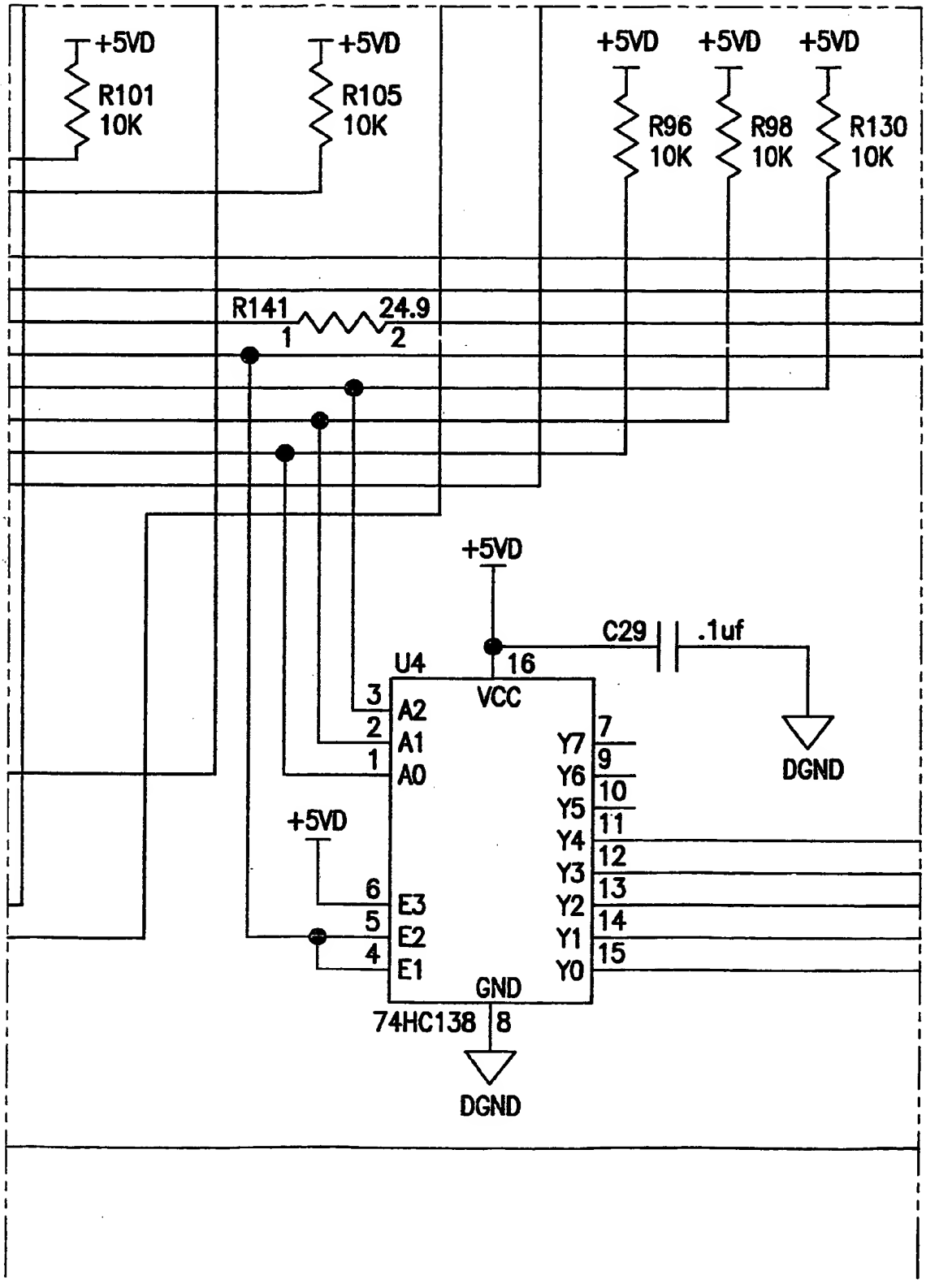

+5VD
R101
10K
+5VD
R105
10K
+5VD
+5VD
+5VD
R96
10K
R98
10K
R130
10K
R141
1
24.9
2
+5VD
C29
.1uf
U4
16
VCC
3
A2
2
A1
1
A0
Y7
7
Y6
9
Y5
10
Y4
11
Y3
12
Y2
13
Y1
14
Y0
15
DGND
+5VD
6
E3
5
E2
4
E1
GND
74HC138
8
DGND

FIG. 62M

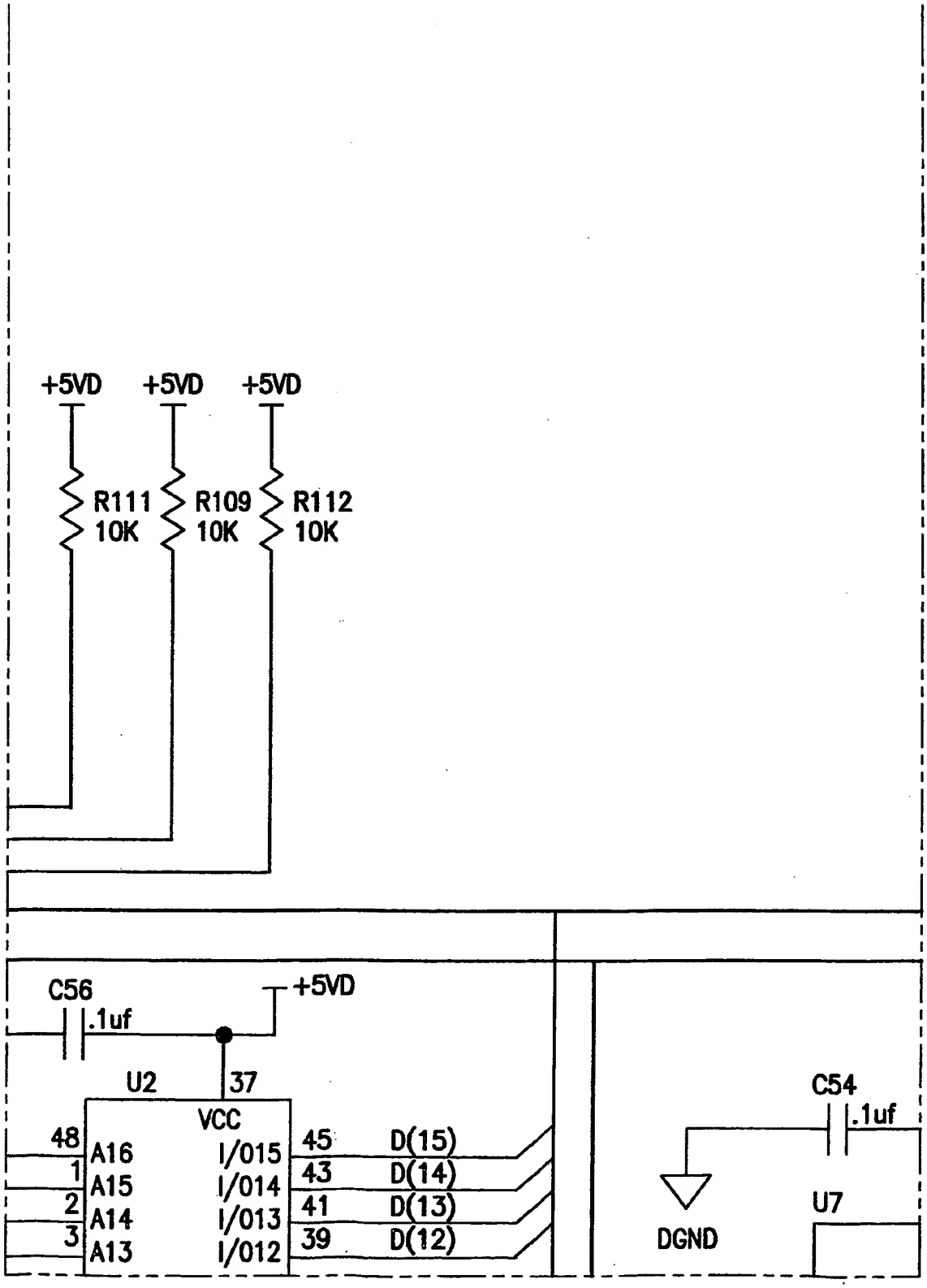

+5VD
+5VD
+5VD
R111
10K
R109
10K
R112
10K
C56
.1uf
+5VD
U2
37
VCC
48
A16
1
A15
2
A14
3
A13
I/015
I/014
I/013
I/012
45
43
41
39
D(15)
D(14)
D(13)
D(12)
C54
.1uf
DGND
U7

FIG. 62N

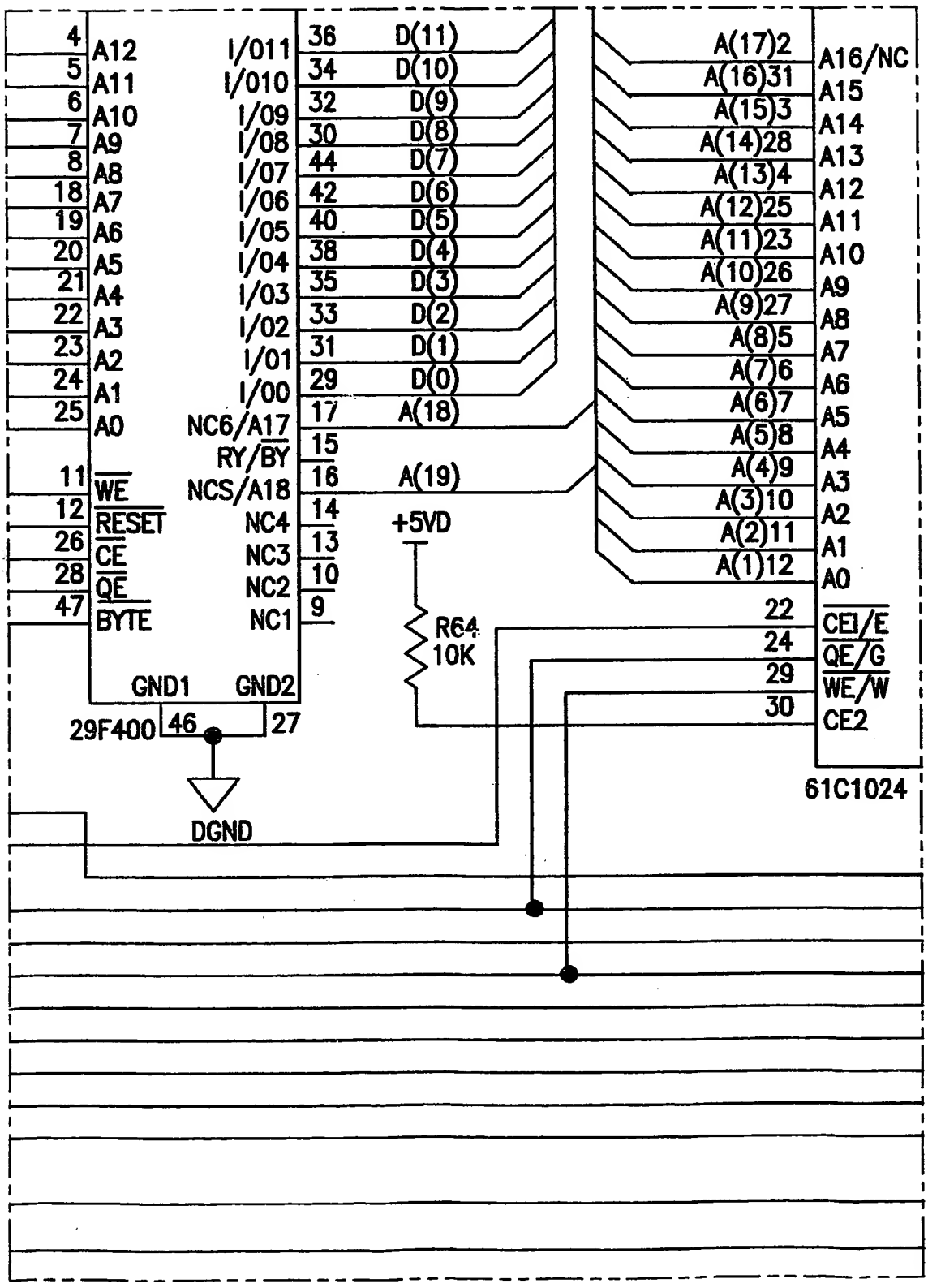

4 A12
5 A11
6 A10
7 A9
8 A8
18 A7
19 A6
20 A5
21 A4
22 A3
23 A2
24 A1
25 A0
11 WE
12 RESET
26 CE
28 QE
47 BYTE
GND1
GND2
29F400
46
27
DGND
I/011 36 D(11)
I/010 34 D(10)
I/09 32 D(9)
I/08 30 D(8)
I/07 44 D(7)
I/06 42 D(6)
I/05 40 D(5)
I/04 38 D(4)
I/03 35 D(3)
I/02 33 D(2)
I/01 31 D(1)
I/00 29 D(0)
NC6/A17 17 A(18)
RY/BY 15
NCS/A18 16 A(19)
NC4 14
NC3 13
NC2 10
NC1 9
+5VD
R64
10K
A(17)2
A(16)31
A(15)3
A(14)28
A(13)4
A(12)25
A(11)23
A(10)26
A(9)27
A(8)5
A(7)6
A(6)7
A(5)8
A(4)9
A(3)10
A(2)11
A(1)12
A16/NC
A15
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
22 CE1/E
24 QE/G
29 WE/W
30 CE2
61C1024

FIG. 620

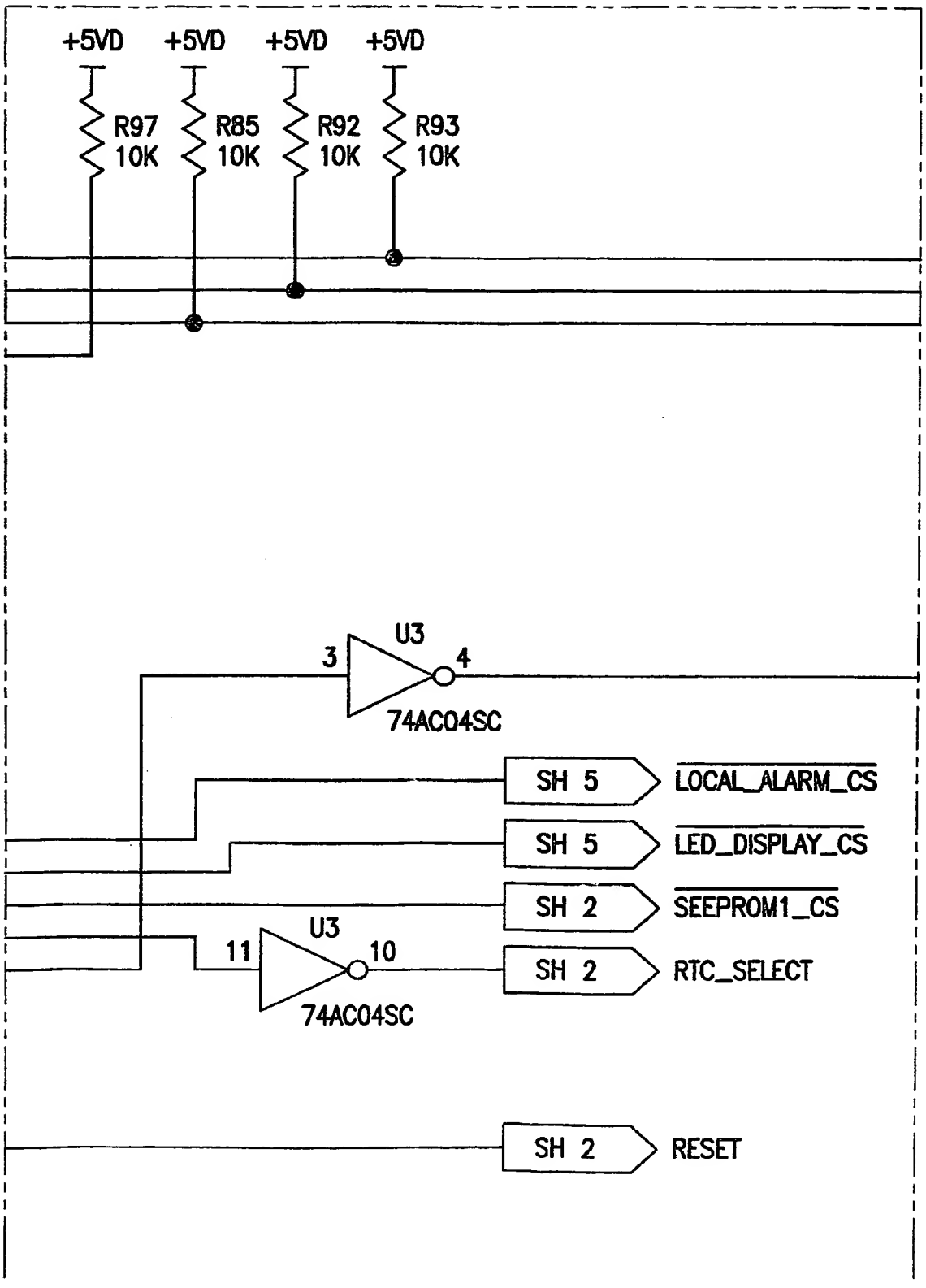

+5VD
+5VD
+5VD
+5VD
R97
10K
R85
10K
R92
10K
R93
10K
U3
3
4
74AC04SC
SH 5
LOCAL_ALARM_CS
SH 5
LED_DISPLAY_CS
SH 2
SEEPROM1_CS
U3
11
10
SH 2
RTC_SELECT
74AC04SC
SH 2
RESET

FIG. 62P

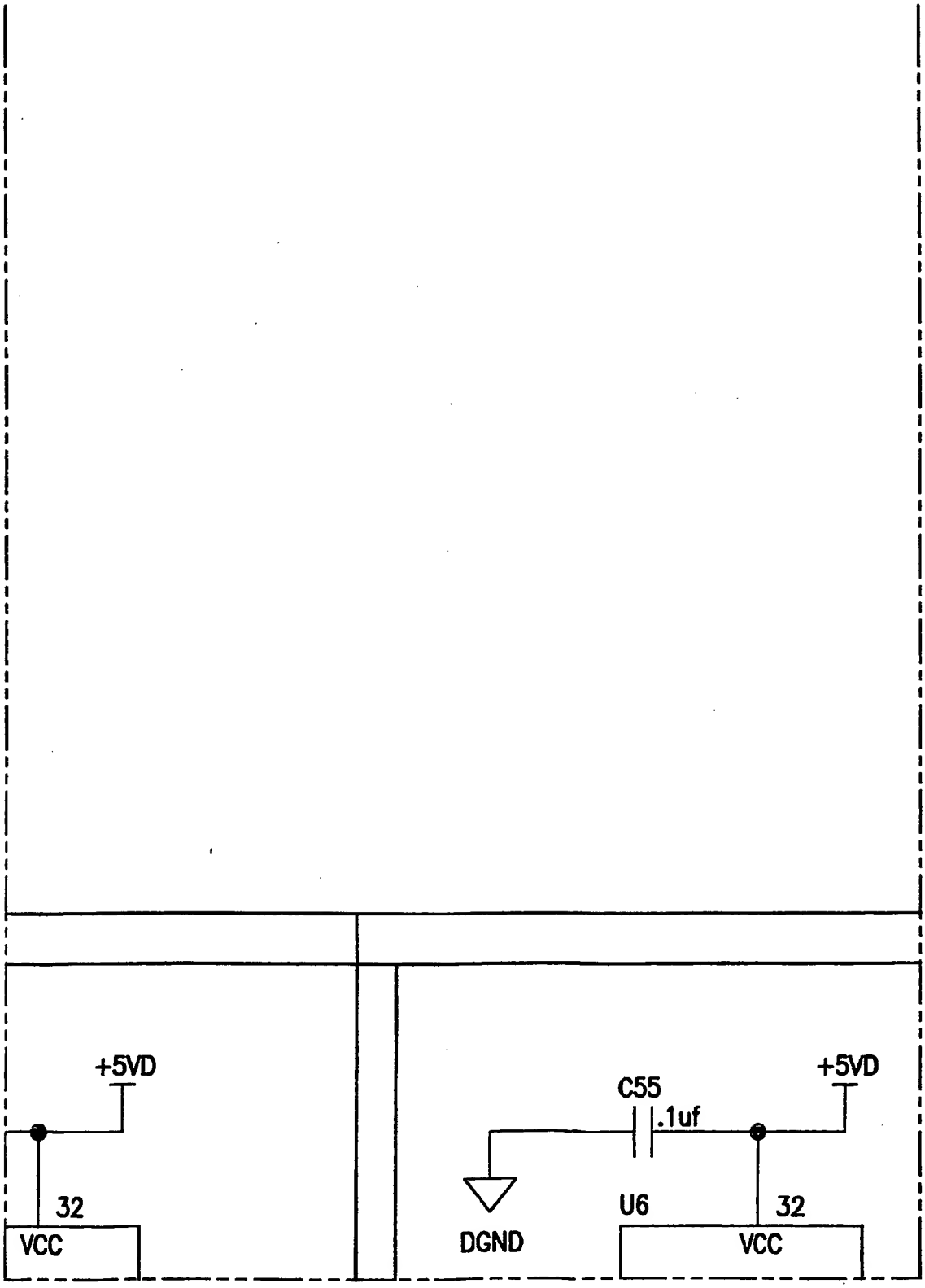


FIG. 62Q

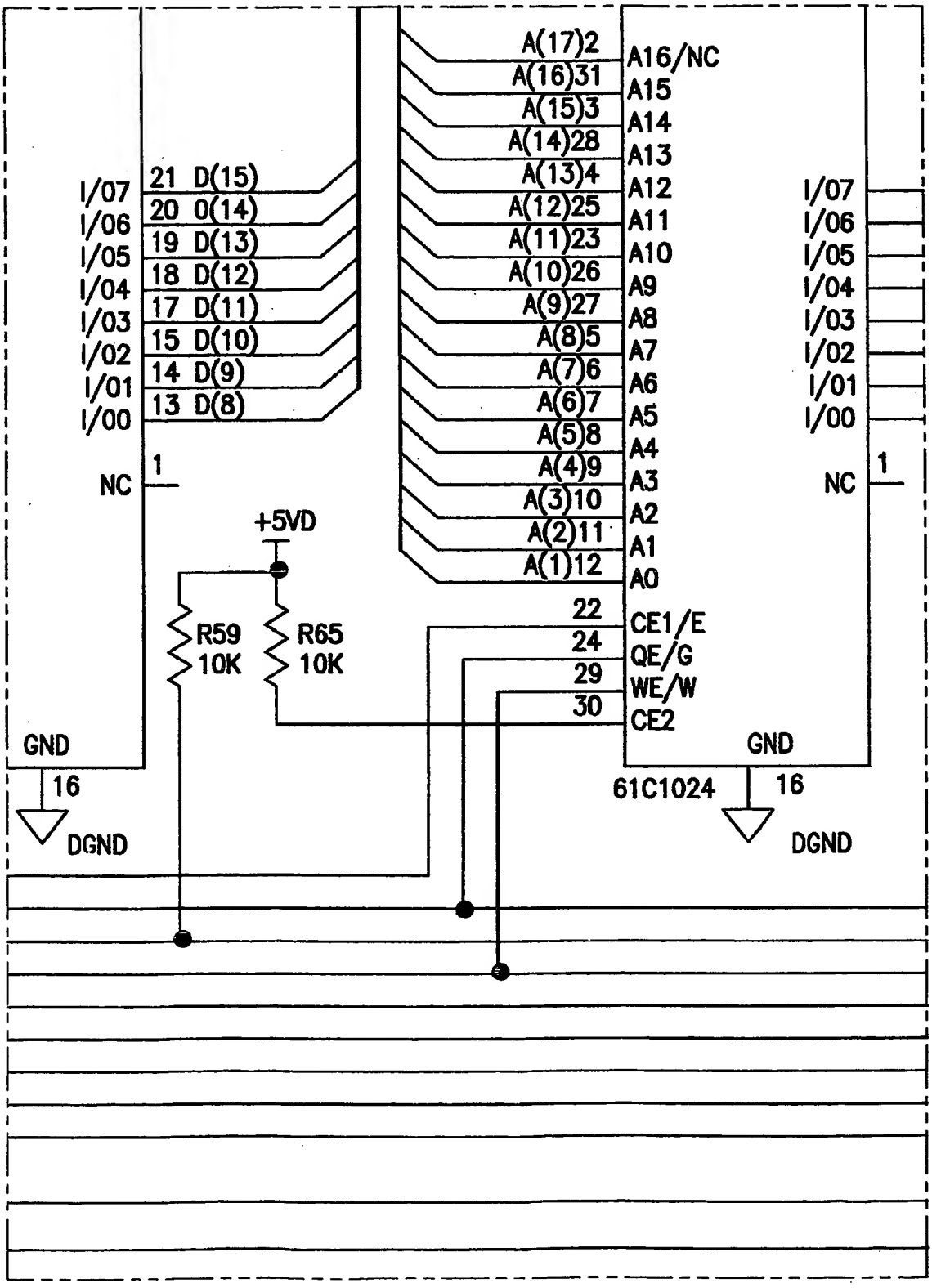

A(17)2
A(16)31
A(15)3
A(14)28
A(13)4
A(12)25
A(11)23
A(10)26
A(9)27
A(8)5
A(7)6
A(6)7
A(5)8
A(4)9
A(3)10
A(2)11
A(1)12
A16/NC
A15
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
22 CE1/E
24 QE/G
29 WE/W
30 CE2
I/07 21 D(15)
I/06 20 O(14)
I/05 19 D(13)
I/04 18 D(12)
I/03 17 D(11)
I/02 15 D(10)
I/01 14 D(9)
I/00 13 D(8)
NC 1
+5VD
R59 10K
R65 10K
GND
16
DGND
61C1024
I/07
I/06
I/05
I/04
I/03
I/02
I/01
I/00
NC 1
GND
16
DGND

FIG. 62R

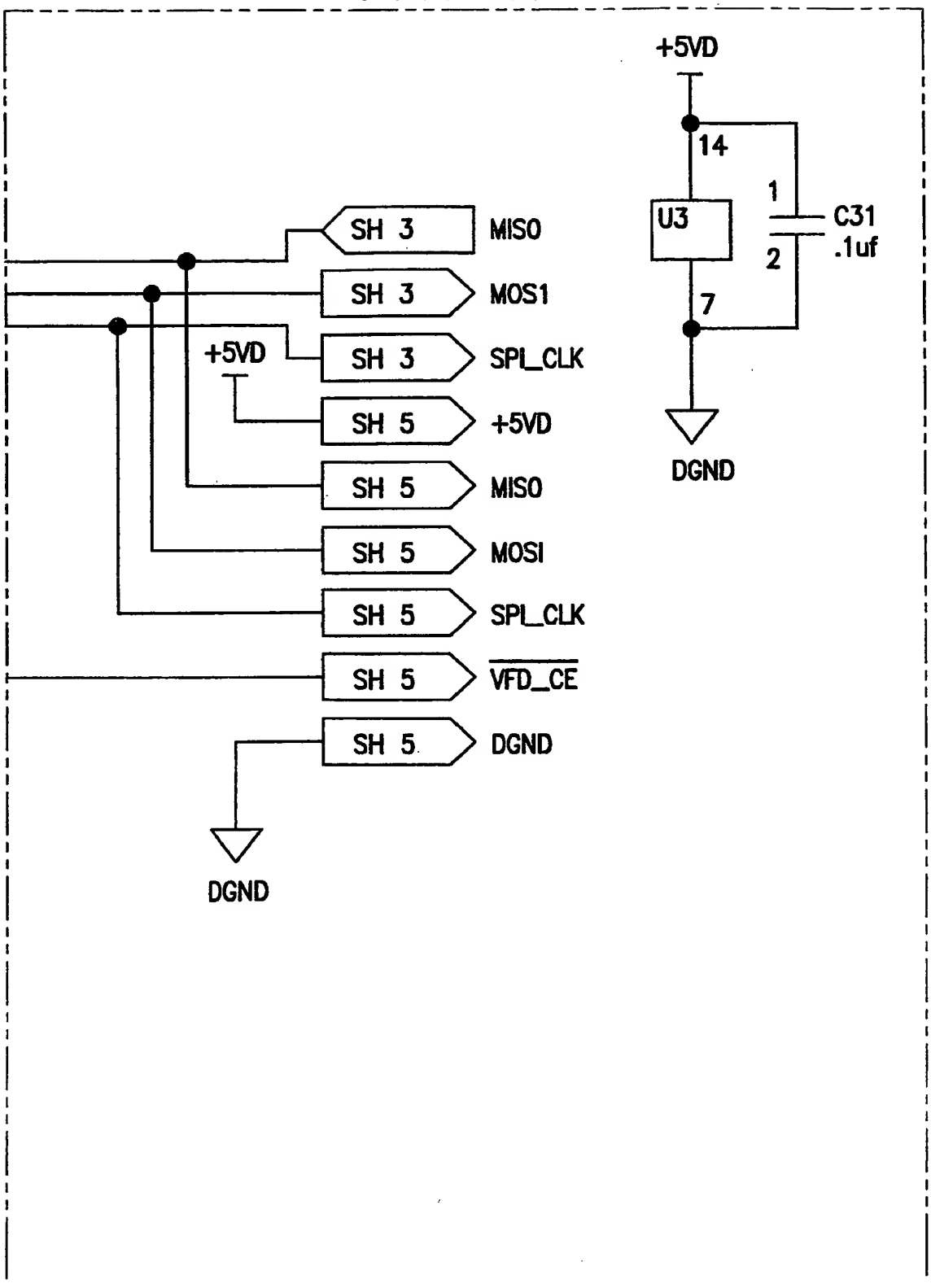

+5VD
14
1
U3
C31
.1uf
2
7
DGND
SH 3
MISO
SH 3
MOS1
+5VD
SH 3
SPI_CLK
SH 5
+5VD
SH 5
MISO
SH 5
MOSI
SH 5
SPI_CLK
SH 5
VFD_CE
SH 5
DGND
DGND

FIG. 62S

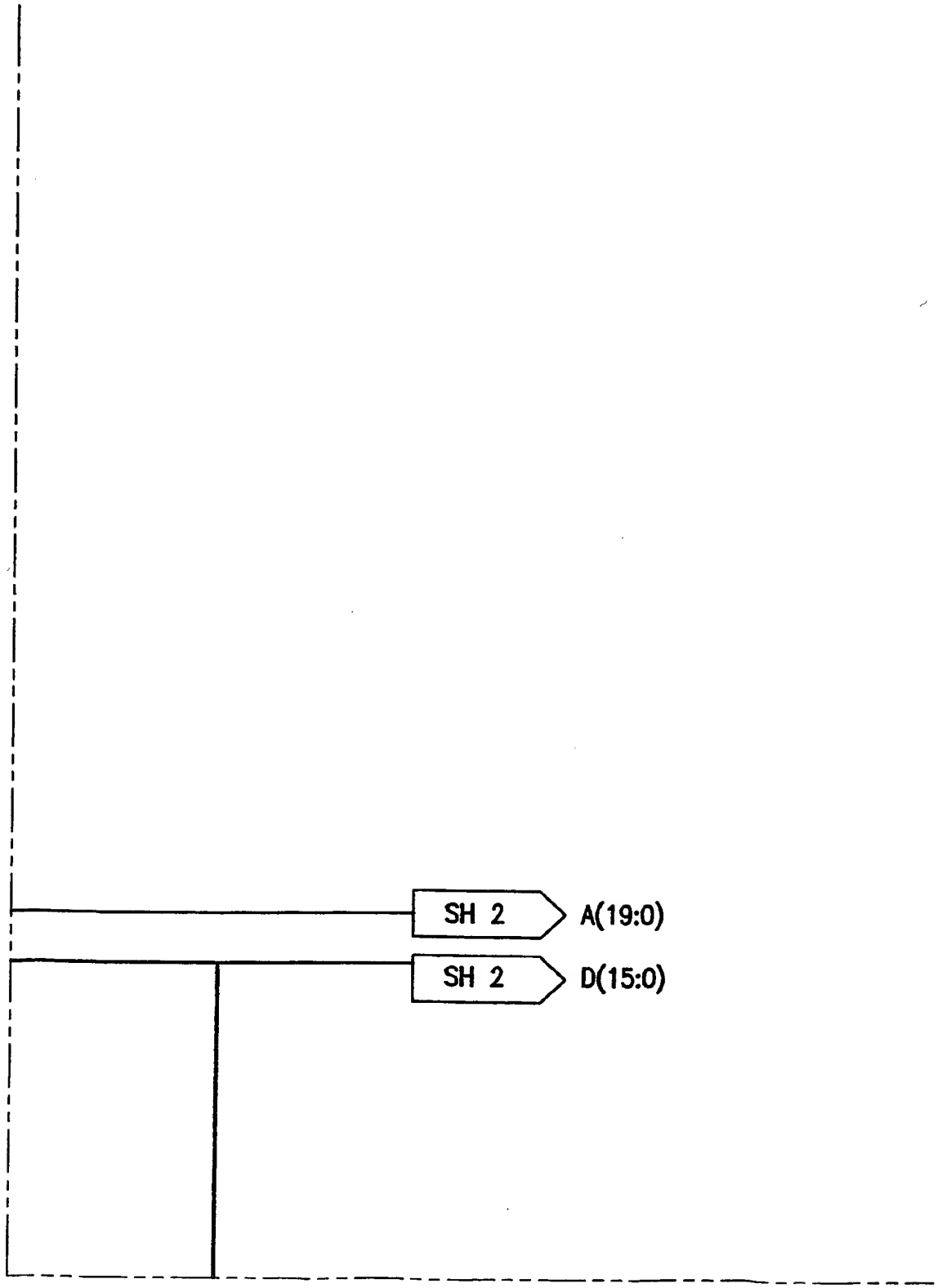


FIG. 62T

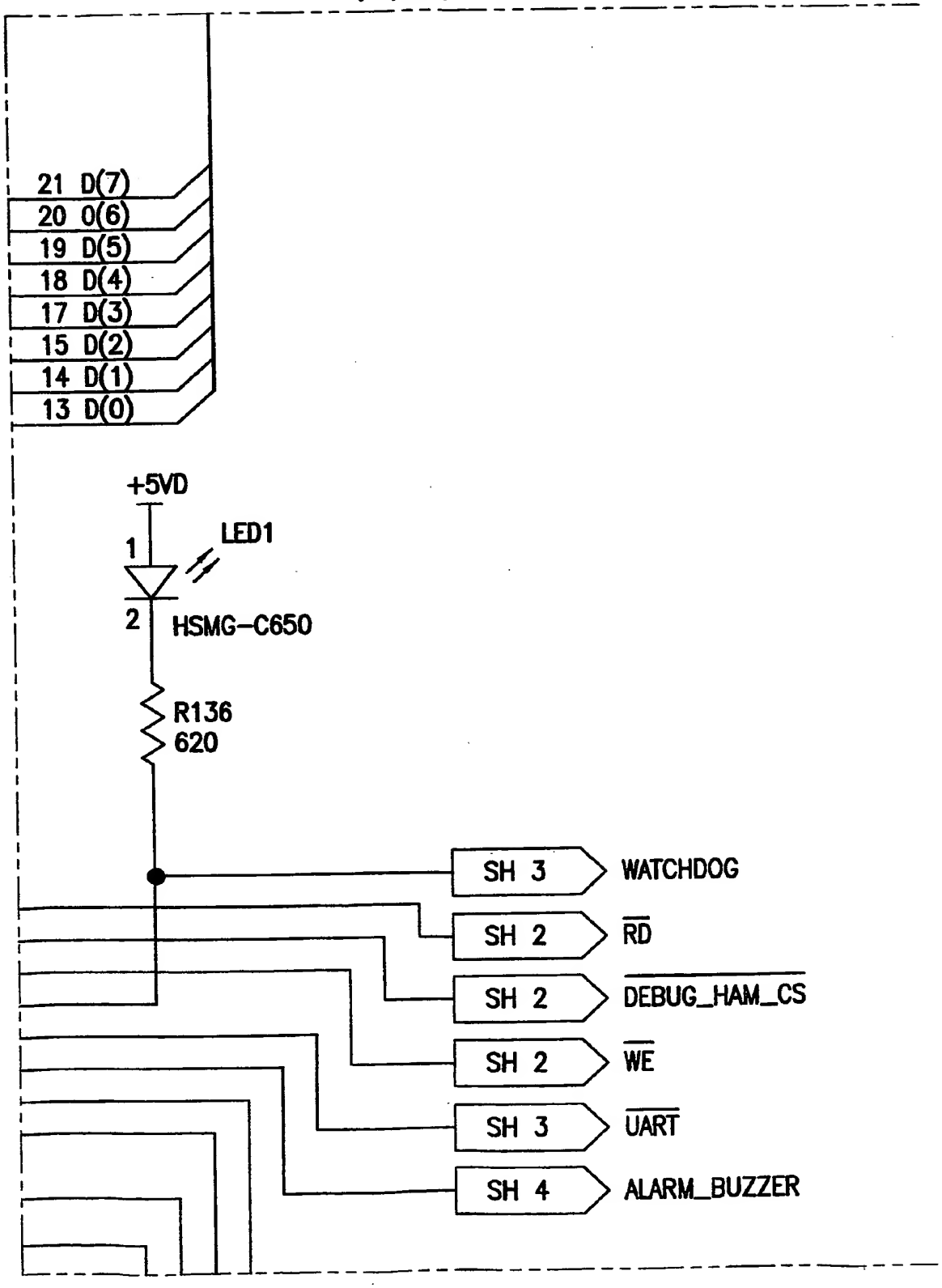

21 D(7)
20 D(6)
19 D(5)
18 D(4)
17 D(3)
15 D(2)
14 D(1)
13 D(0)
+5VD
1
LED1
2
HSMG-C650
R136
620
SH 3
WATCHDOG
SH 2
RD
SH 2
DEBUG_HAM_CS
SH 2
WE
SH 3
UART
SH 4
ALARM_BUZZER

FIG. 62U

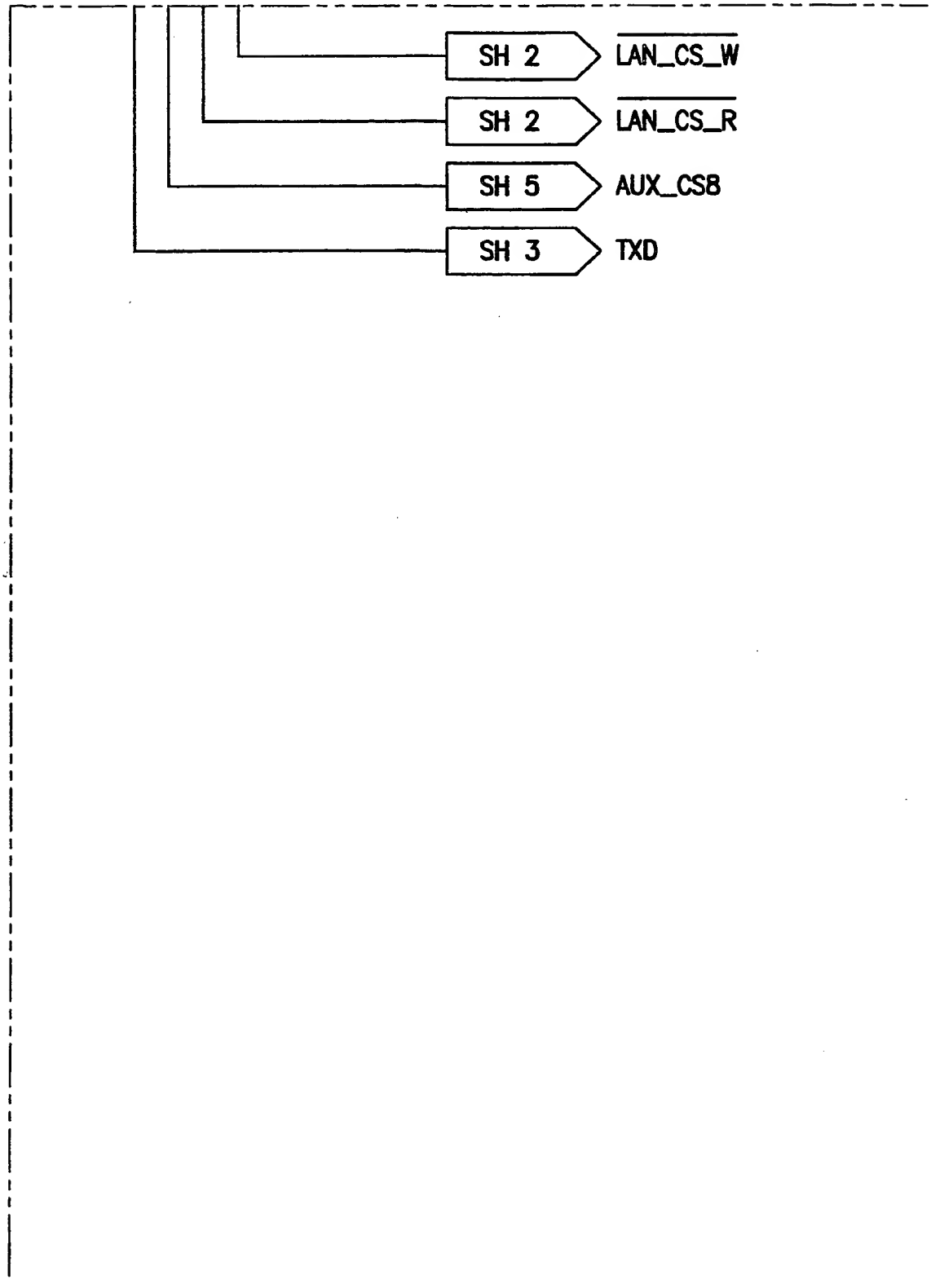


FIG. 63

FIG. 63A	FIG. 63D	FIG. 63G	FIG. 63J
FIG. 63B	FIG. 63E	FIG. 63H	FIG. 63K
FIG. 63C	FIG. 63F	FIG. 63I	FIG. 63L

FIG. 63A

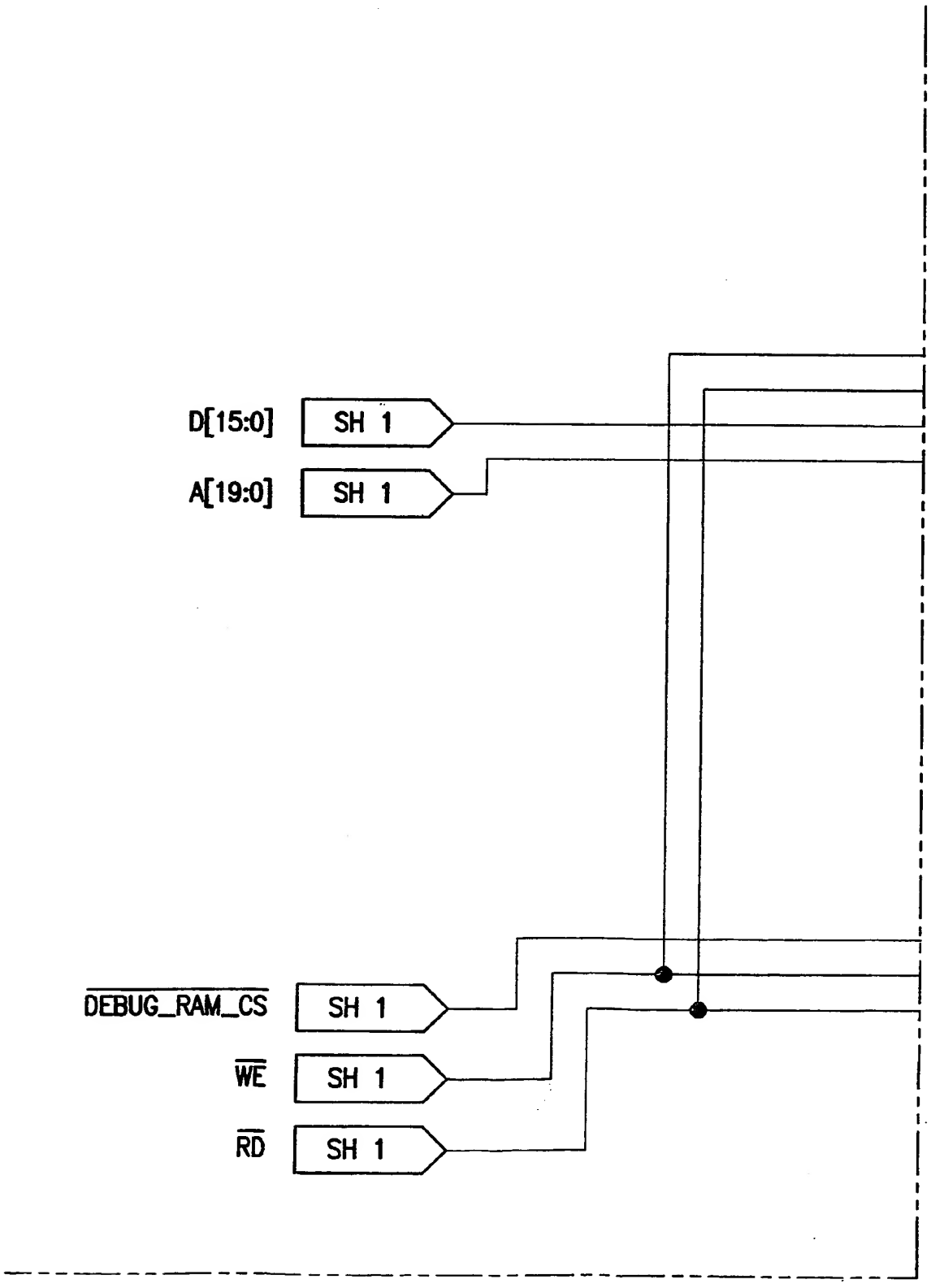


FIG. 63B

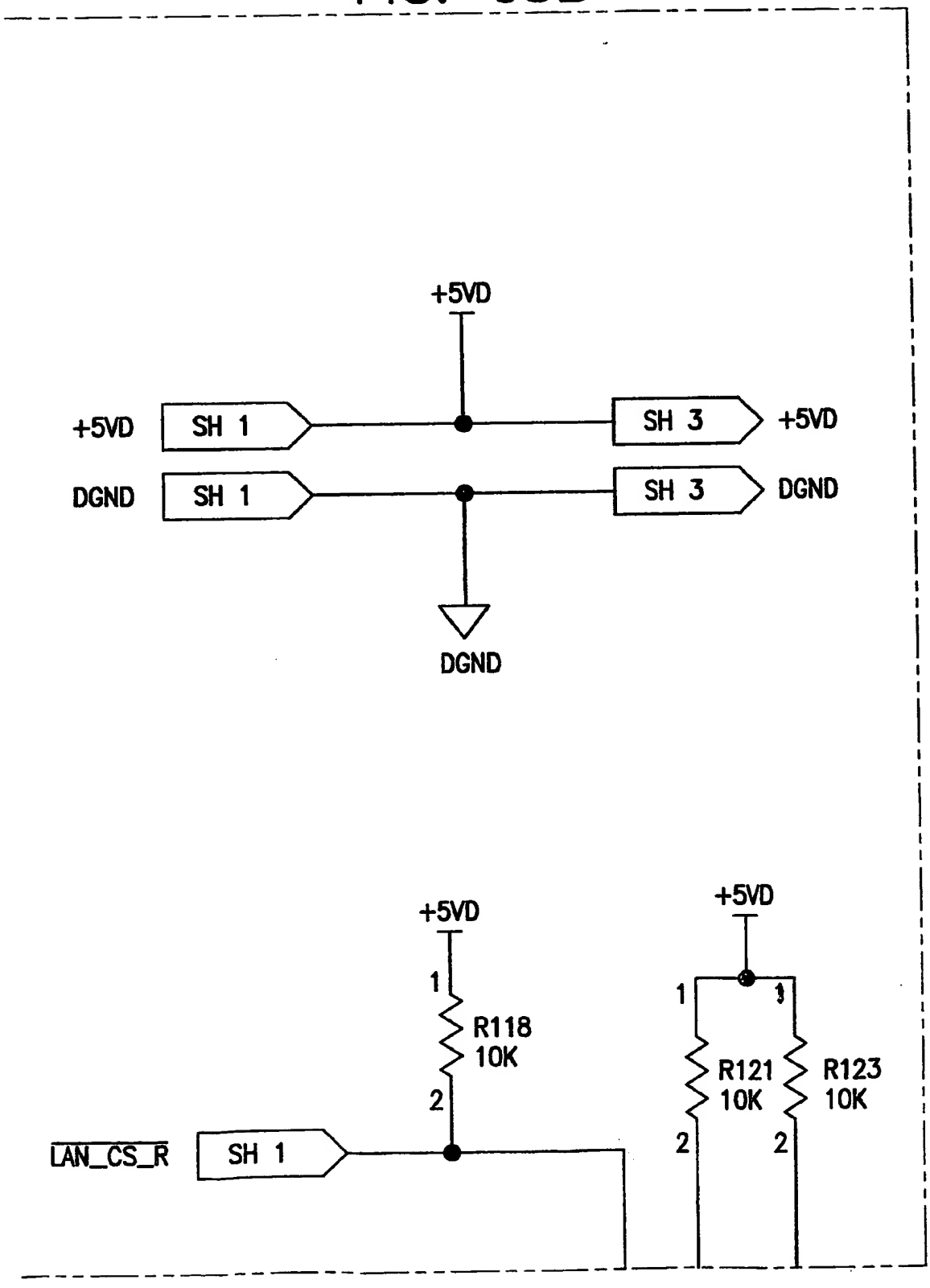

+5VD
+5VD
SH 1
SH 3
+5VD
DGND
SH 1
SH 3
DGND
DGND
+5VD
+5VD
1
R118
10K
2
1
1
R121
10K
R123
10K
2
2
LAN_CS_R
SH 1

FIG. 63C

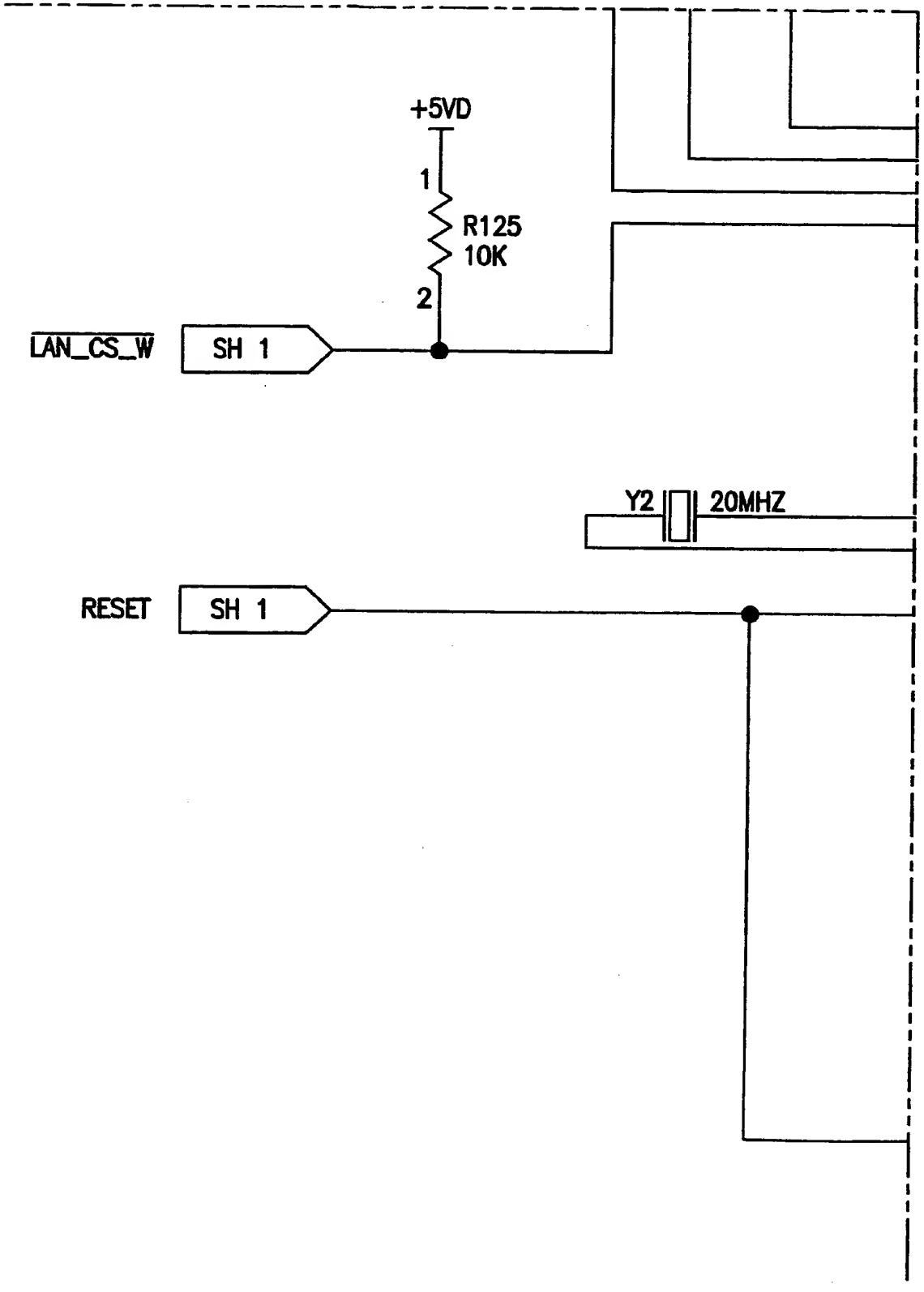


FIG. 63D

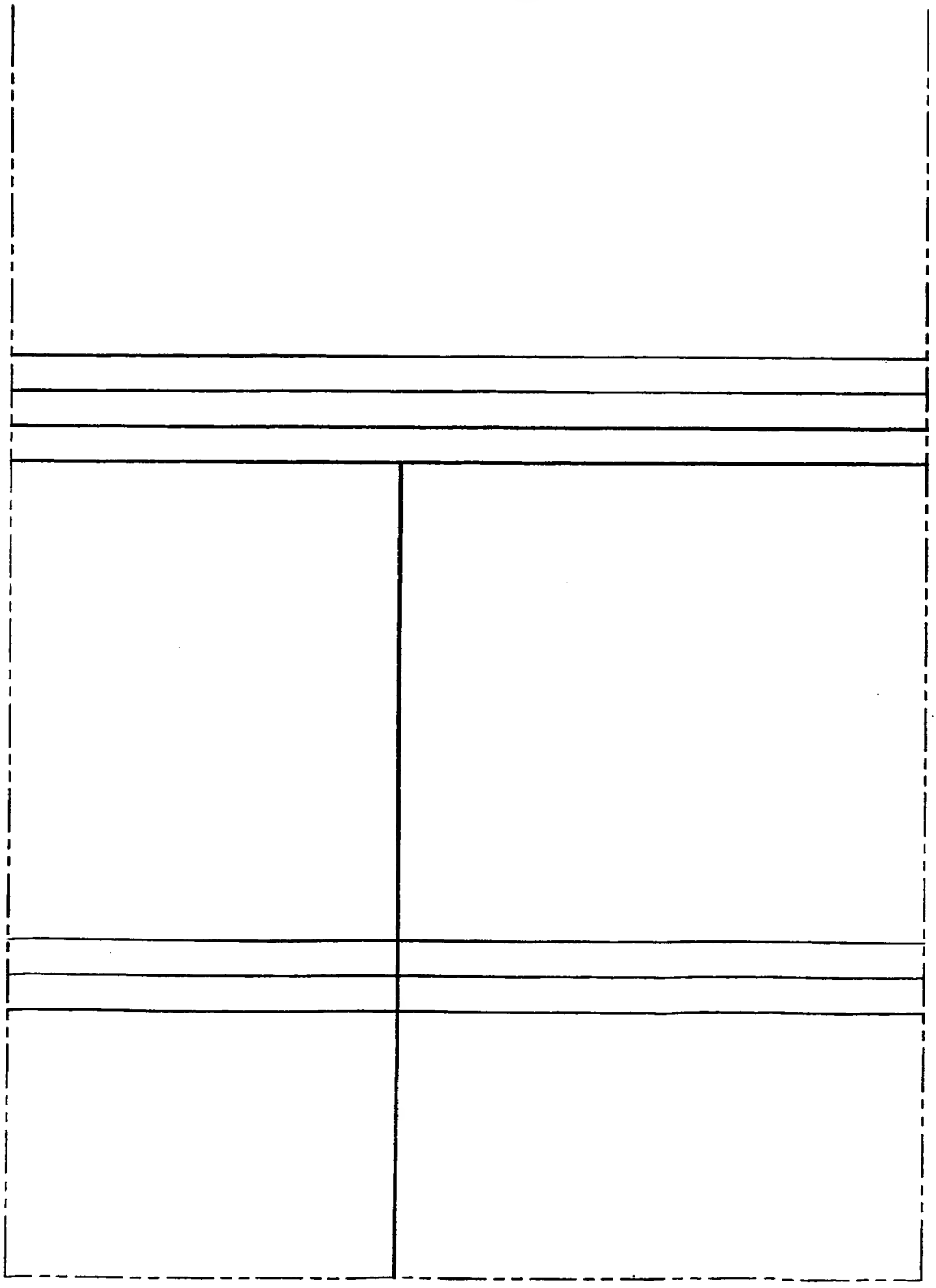


FIG. 63E

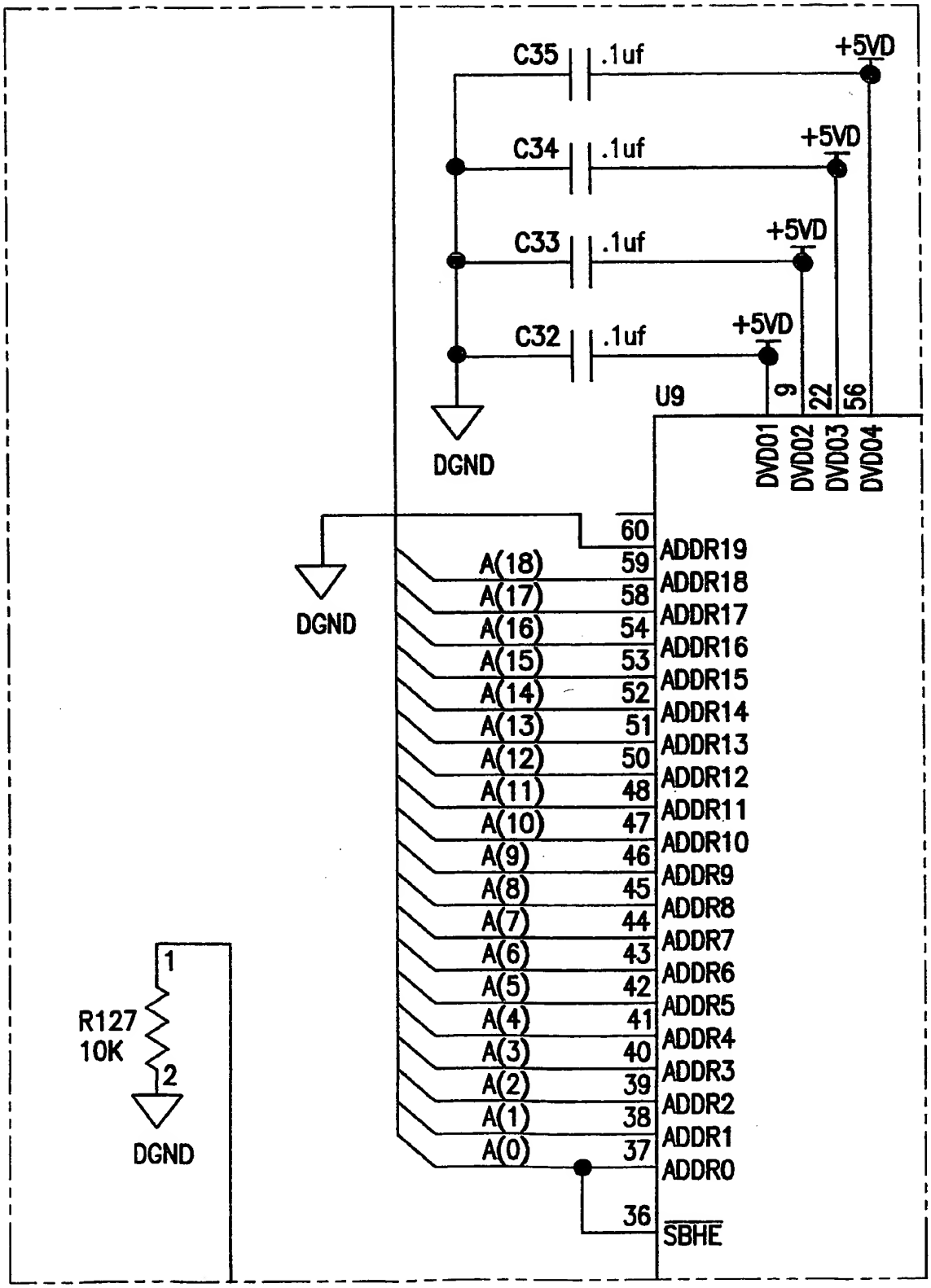

C35 .1uf
C34 .1uf
C33 .1uf
C32 .1uf
+5VD
+5VD
+5VD
+5VD
DGND
U9
9
22
56
DVD01
DVD02
DVD03
DVD04
DGND
60
A(18) 59 ADDR19
A(17) 58 ADDR18
A(16) 54 ADDR17
A(15) 53 ADDR16
A(14) 52 ADDR15
A(13) 51 ADDR14
A(12) 50 ADDR13
A(11) 48 ADDR12
A(10) 47 ADDR11
A(9) 46 ADDR10
A(8) 45 ADDR9
A(7) 44 ADDR8
A(6) 43 ADDR7
A(5) 42 ADDR6
A(4) 41 ADDR5
A(3) 40 ADDR4
A(2) 39 ADDR3
A(1) 38 ADDR2
A(0) 37 ADDR1
ADDR0
36
SBHE
1
R127
10K
2
DGND

FIG. 63F

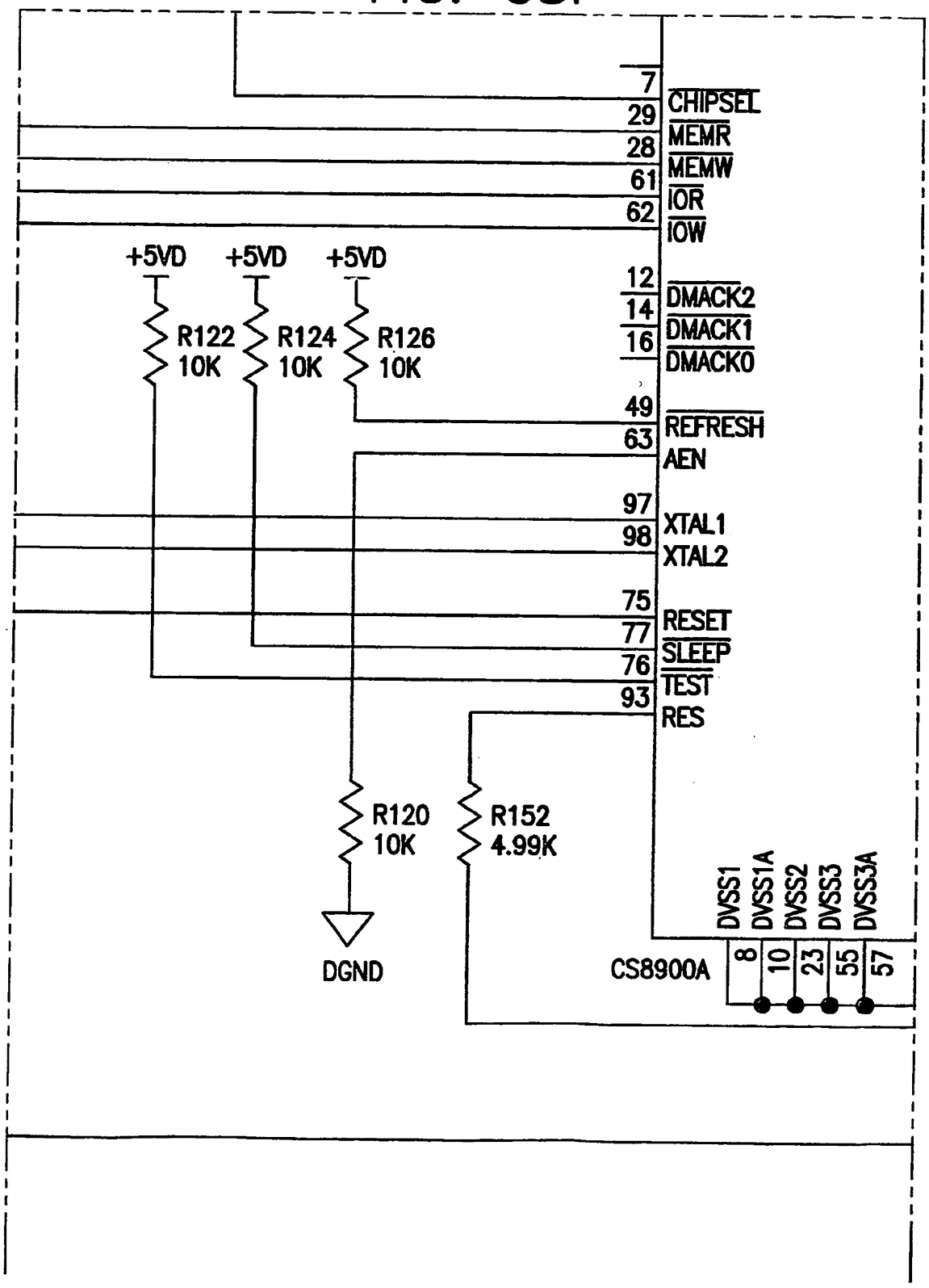

7
CHIPSEL
29
MEMR
28
MEMW
61
IOR
62
IOW
+5VD
+5VD
+5VD
R122
10K
R124
10K
R126
10K
12
DMACK2
14
DMACK1
16
DMACK0
49
REFRESH
63
AEN
97
XTAL1
98
XTAL2
75
RESET
77
SLEEP
76
TEST
93
RES
R120
10K
R152
4.99K
DGND
CS8900A
DVSS1
DVSS1A
DVSS2
DVSS3
DVSS3A
8
10
23
55
57

FIG. 63G

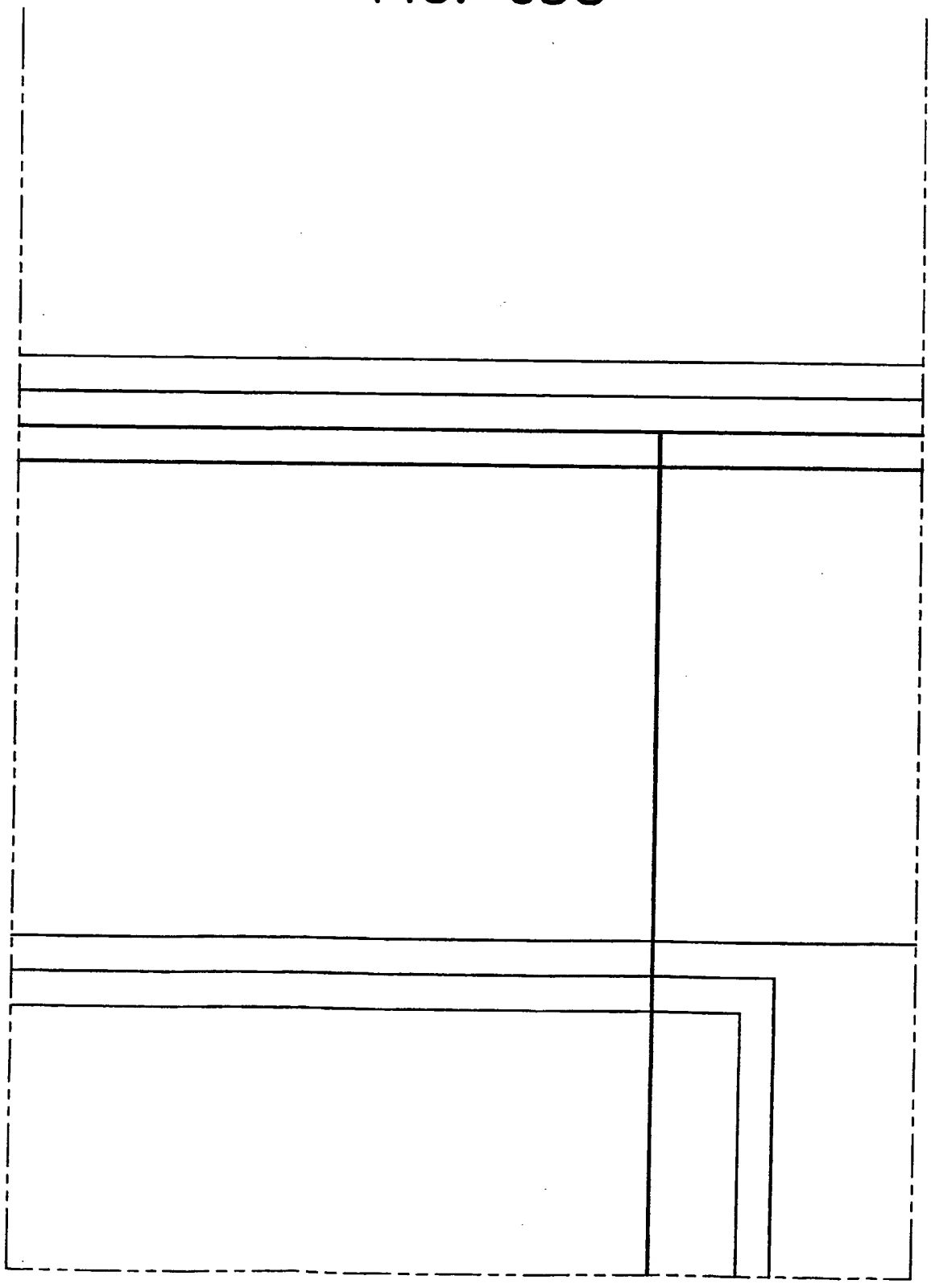


FIG. 63H

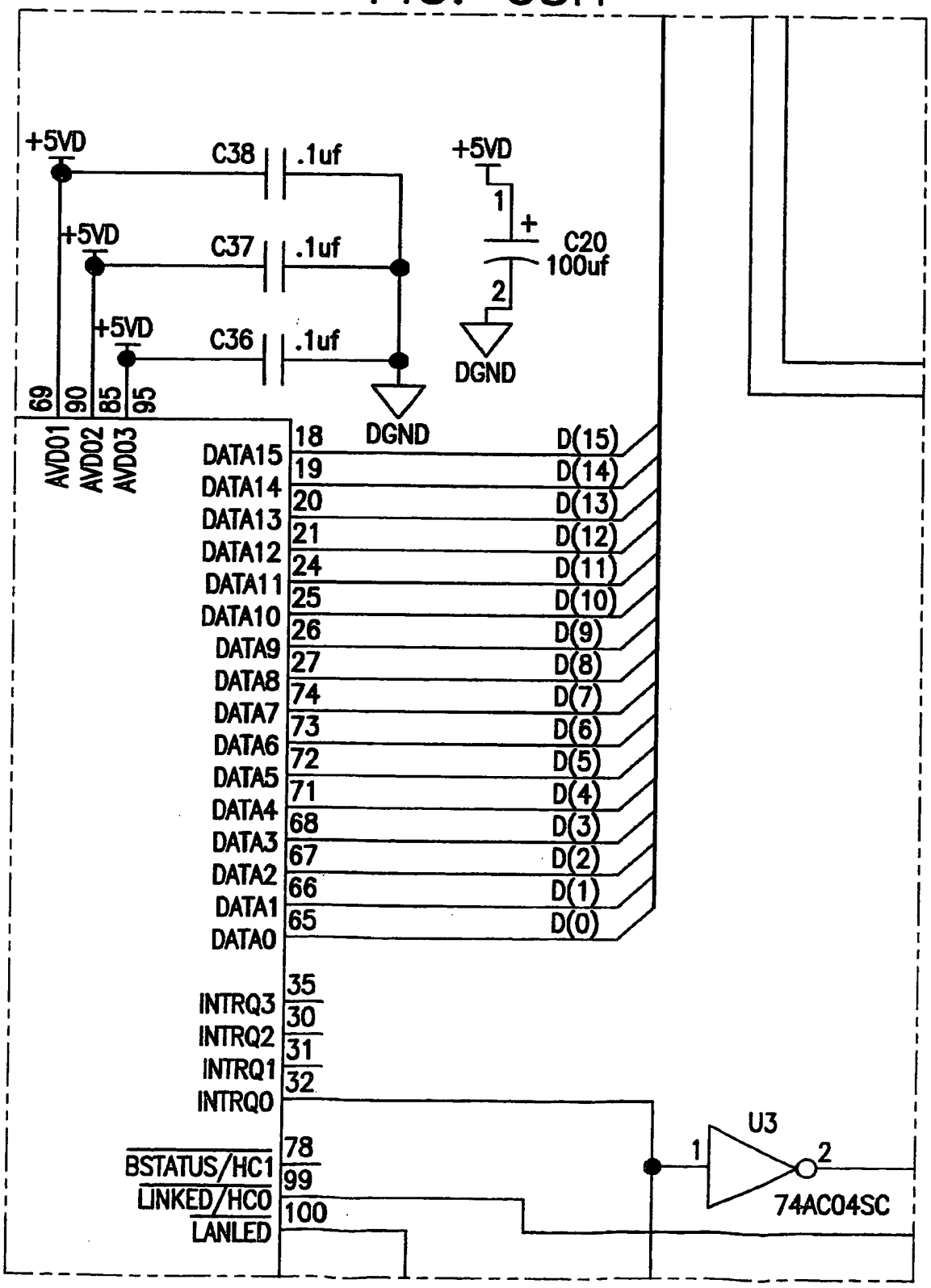

+5VD
C38
.1uf
+5VD
C37
.1uf
+5VD
C36
.1uf
DGND
+5VD
1
+
C20
100uf
2
DGND
69
90
85
95
AVD01
AVD02
AVD03
DATA15
DATA14
DATA13
DATA12
DATA11
DATA10
DATA9
DATA8
DATA7
DATA6
DATA5
DATA4
DATA3
DATA2
DATA1
DATA0
18
19
20
21
24
25
26
27
74
73
72
71
68
67
66
65
D(15)
D(14)
D(13)
D(12)
D(11)
D(10)
D(9)
D(8)
D(7)
D(6)
D(5)
D(4)
D(3)
D(2)
D(1)
D(0)
INTRQ3
INTRQ2
INTRQ1
INTRQ0
35
30
31
32
BSTATUS/HC1
LINKED/HC0
LANLED
78
99
100
U3
1
2
74AC04SC

FIG. 631

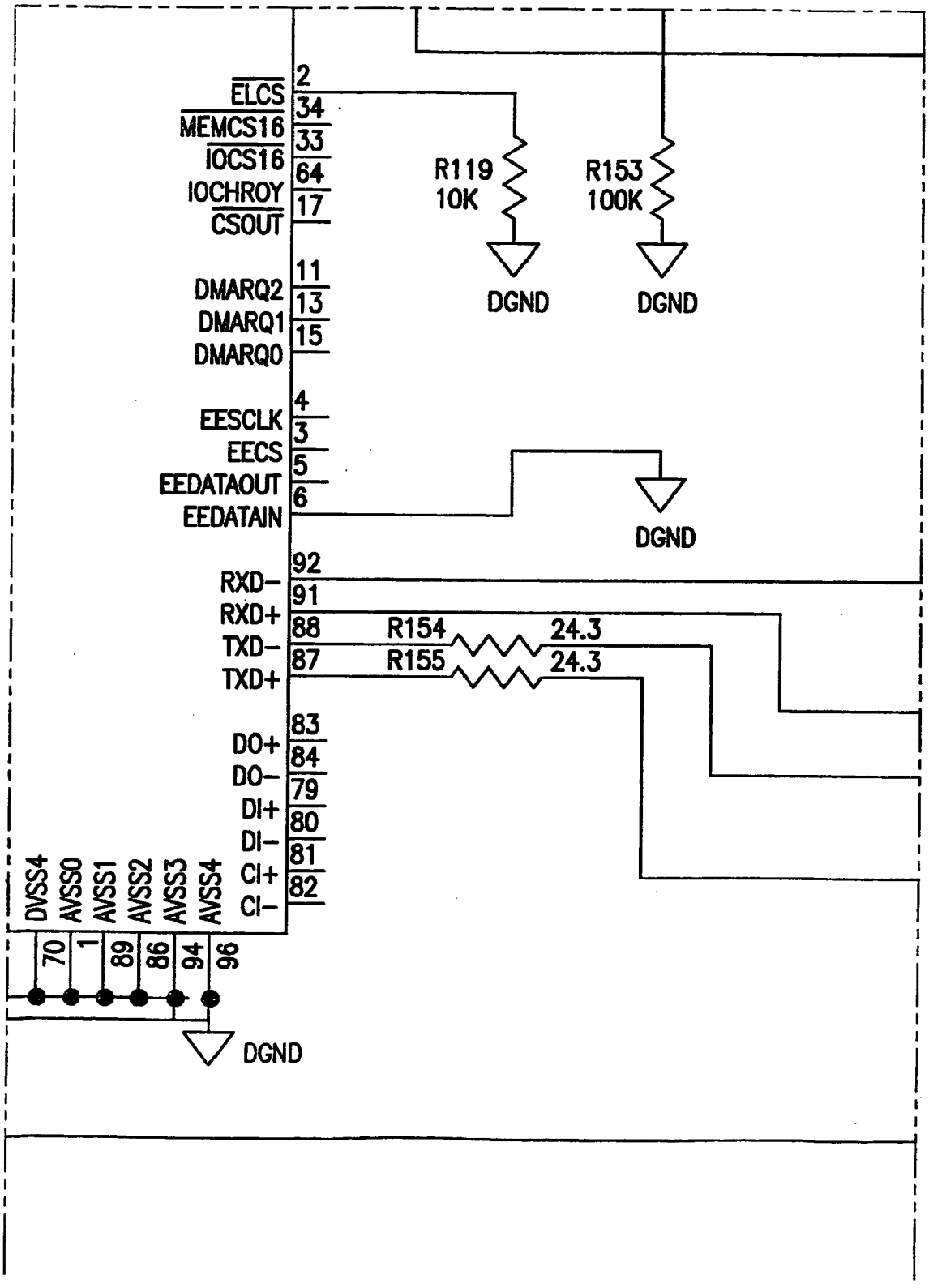

ELCS
MEMCS16
IOCS16
IOCHROY
CSOUT
DMARQ2
DMARQ1
DMARQ0
EESCLK
EECS
EEDATAOUT
EEDATAIN
RXD−
RXD+
TXD−
TXD+
DO+
DO−
DI+
DI−
CI+
CI−
2
34
33
64
17
11
13
15
4
3
5
6
92
91
88
87
83
84
79
80
81
82
R119
10K
R153
100K
DGND
DGND
DGND
R154
24.3
R155
24.3
DVSS4
AVSS0
AVSS1
AVSS2
AVSS3
AVSS4
70
1
89
86
94
96
DGND

FIG. 63J

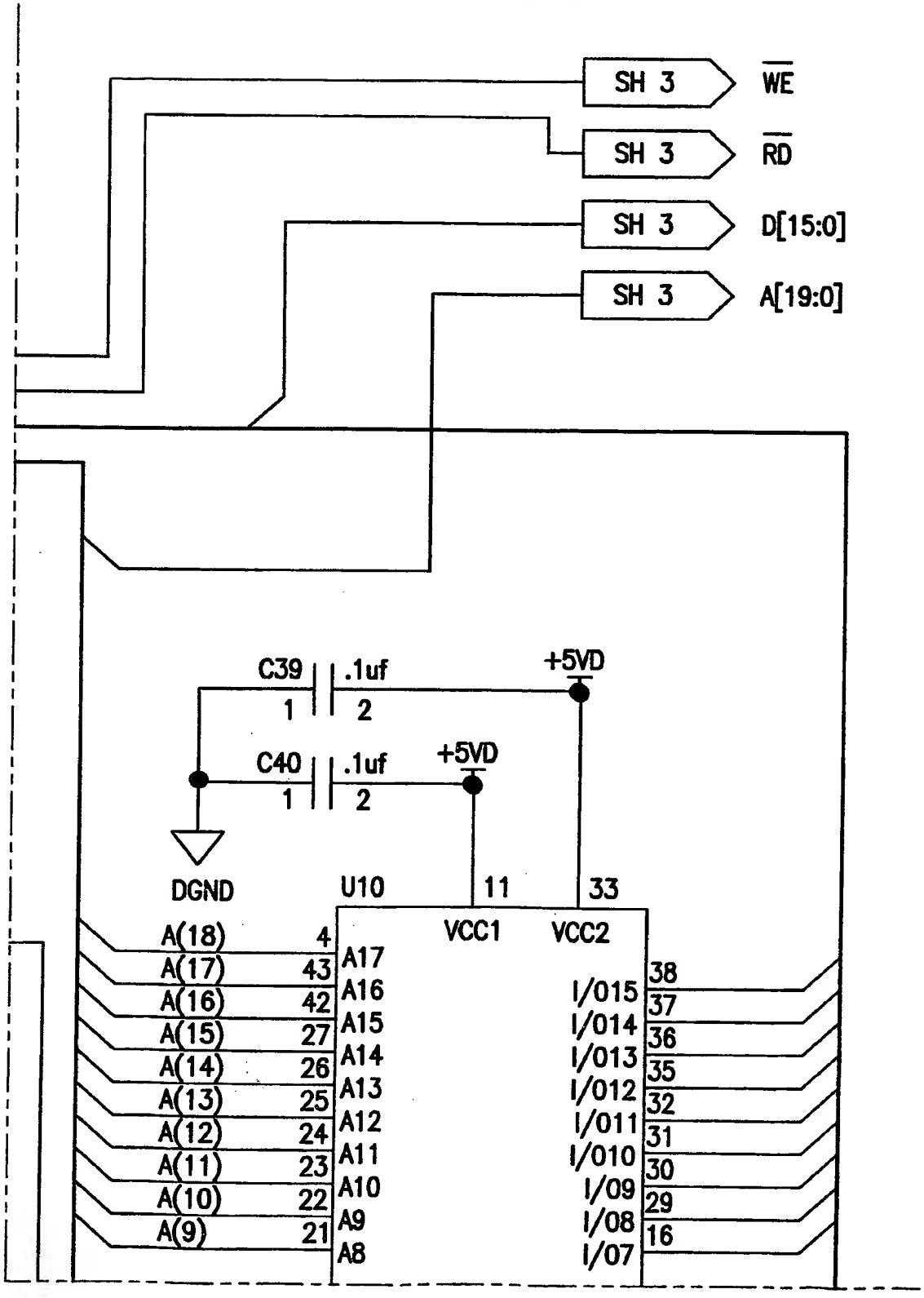

SH 3
WE
SH 3
RD
SH 3
D[15:0]
SH 3
A[19:0]
C39
.1uf
1
2
+5VD
C40
.1uf
1
2
+5VD
DGND
U10
11
VCC1
33
VCC2
A(18)
4
A17
A(17)
43
A16
A(16)
42
A15
A(15)
27
A14
A(14)
26
A13
A(13)
25
A12
A(12)
24
A11
A(11)
23
A10
A(10)
22
A9
A(9)
21
A8
I/015
38
I/014
37
I/013
36
I/012
35
I/011
32
I/010
31
I/09
30
I/08
29
I/07
16

FIG. 63K

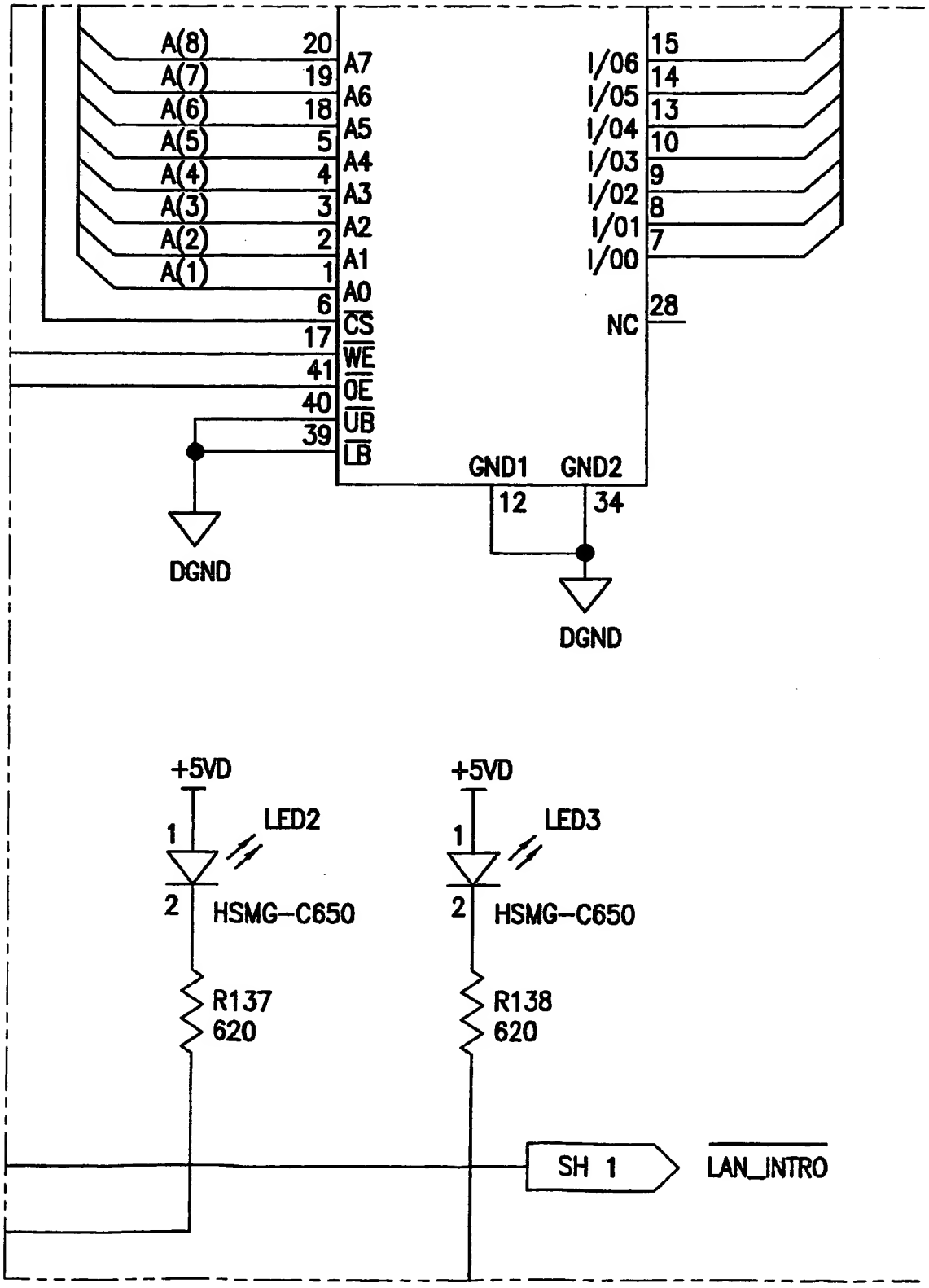

A(8)
A(7)
A(6)
A(5)
A(4)
A(3)
A(2)
A(1)
20
19
18
5
4
3
2
1
A7
A6
A5
A4
A3
A2
A1
A0
6
17
41
40
39
CS
WE
OE
UB
LB
I/06
I/05
I/04
I/03
I/02
I/01
I/00
15
14
13
10
9
8
7
NC
28
GND1
GND2
12
34
DGND
DGND
+5VD
+5VD
LED2
LED3
1
2
HSMG-C650
HSMG-C650
R137
620
R138
620
SH 1
LAN_INTRO

FIG. 63L

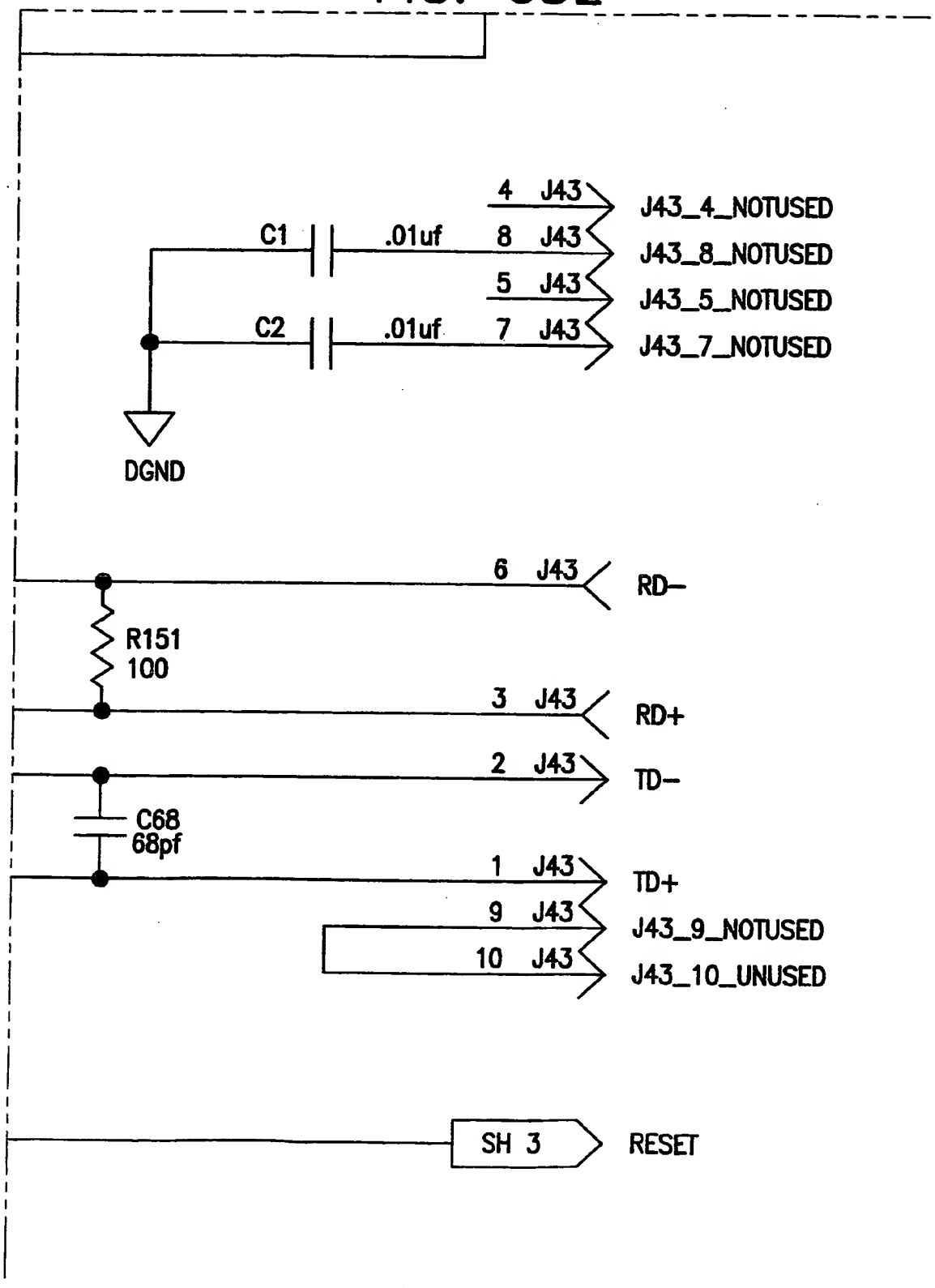

4 J43
J43_4_NOTUSED
C1
.01uf
8 J43
J43_8_NOTUSED
5 J43
J43_5_NOTUSED
C2
.01uf
7 J43
J43_7_NOTUSED
DGND
6 J43
RD-
R151
100
3 J43
RD+
2 J43
TD-
C68
68pf
1 J43
TD+
9 J43
J43_9_NOTUSED
10 J43
J43_10_UNUSED
SH 3
RESET

FIG. 64

FIG. 64A	FIG. 64D	FIG. 64G	FIG. 64J	FIG. 64M	FIG. 64P
FIG. 64B	FIG. 64E	FIG. 64H	FIG. 64K	FIG. 64N	FIG. 64Q
FIG. 64C	FIG. 64F	FIG. 64I	FIG. 64L	FIG. 64O	

FIG. 64A

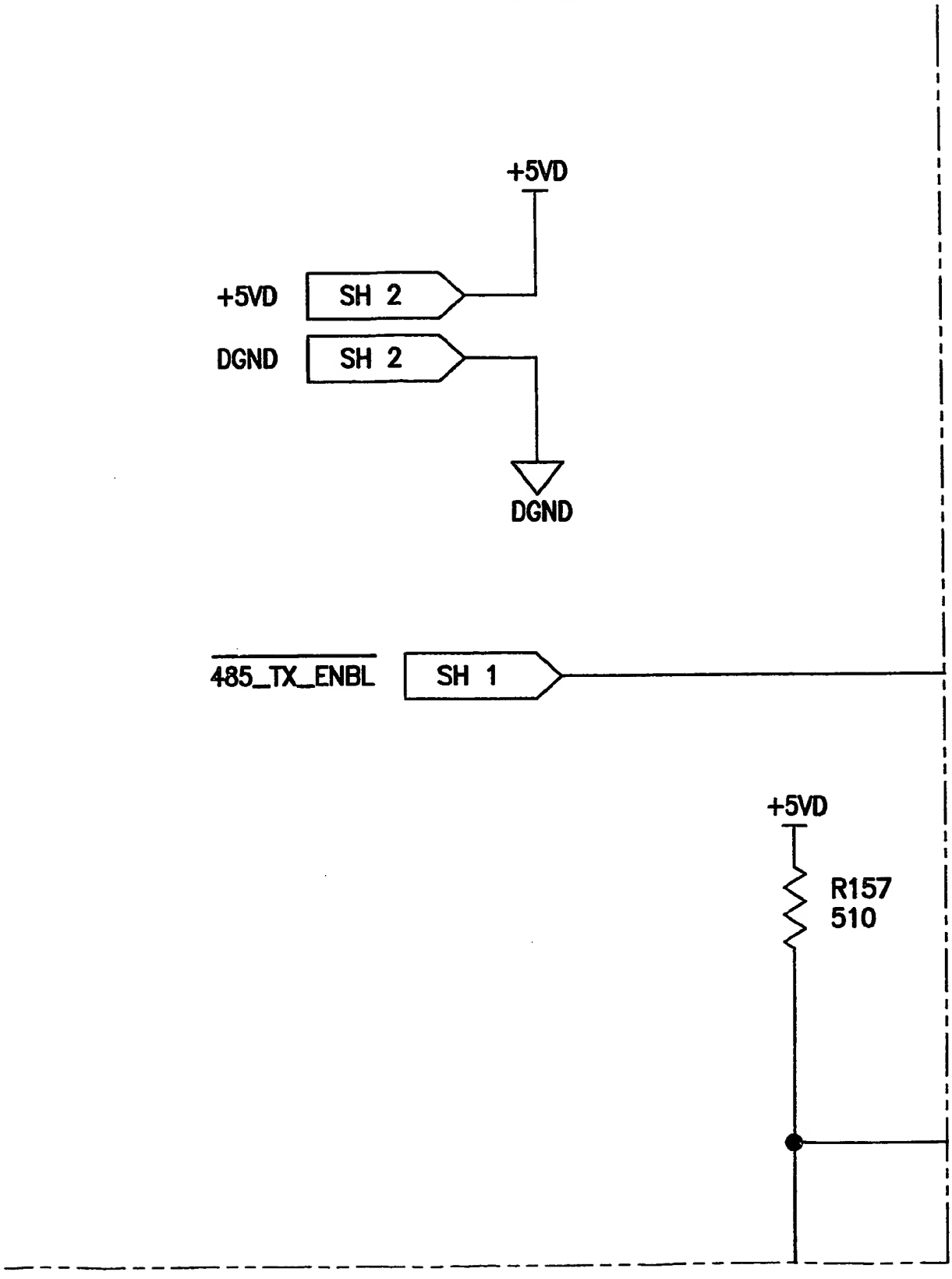


FIG. 64B

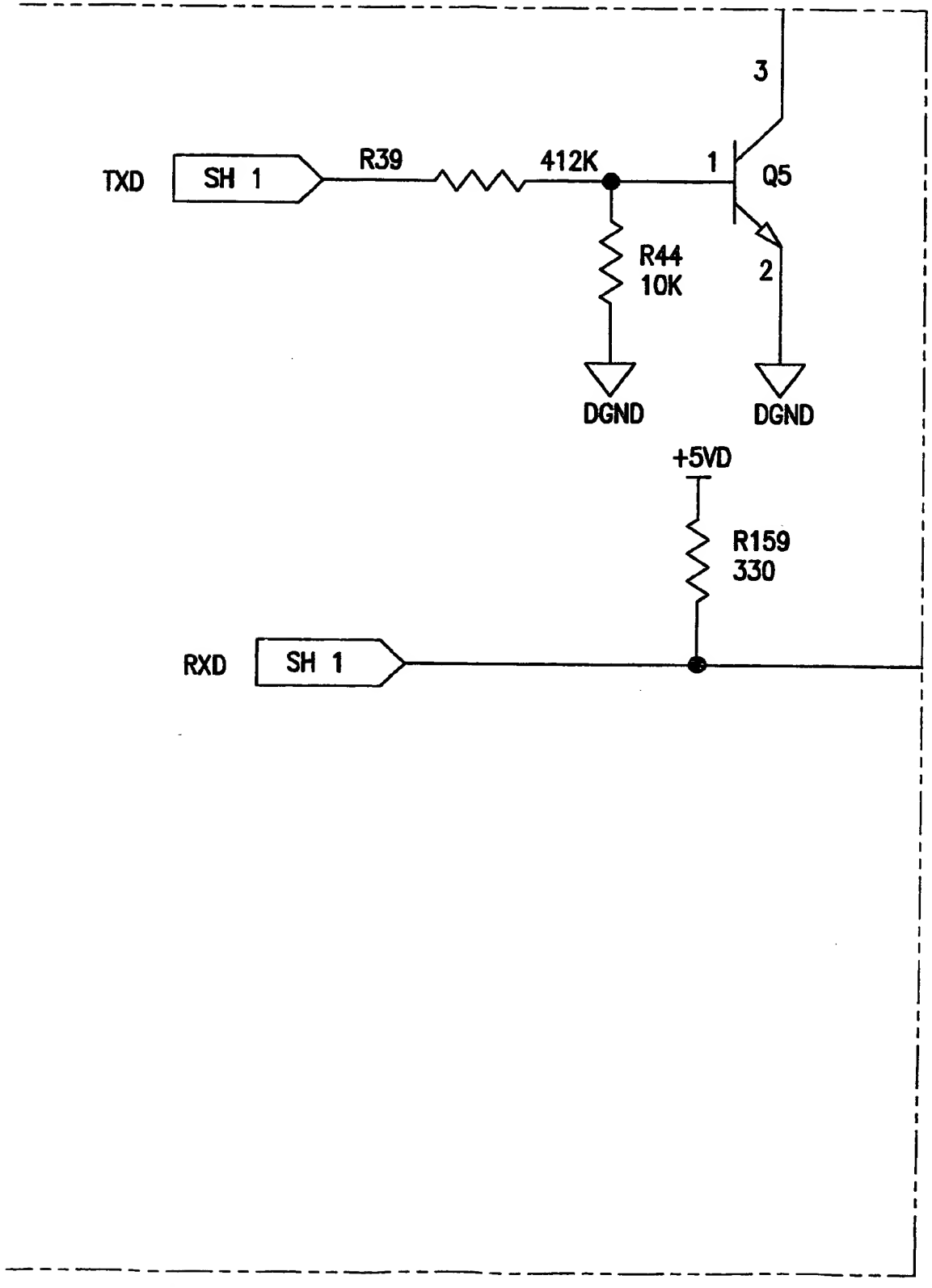


FIG. 64C

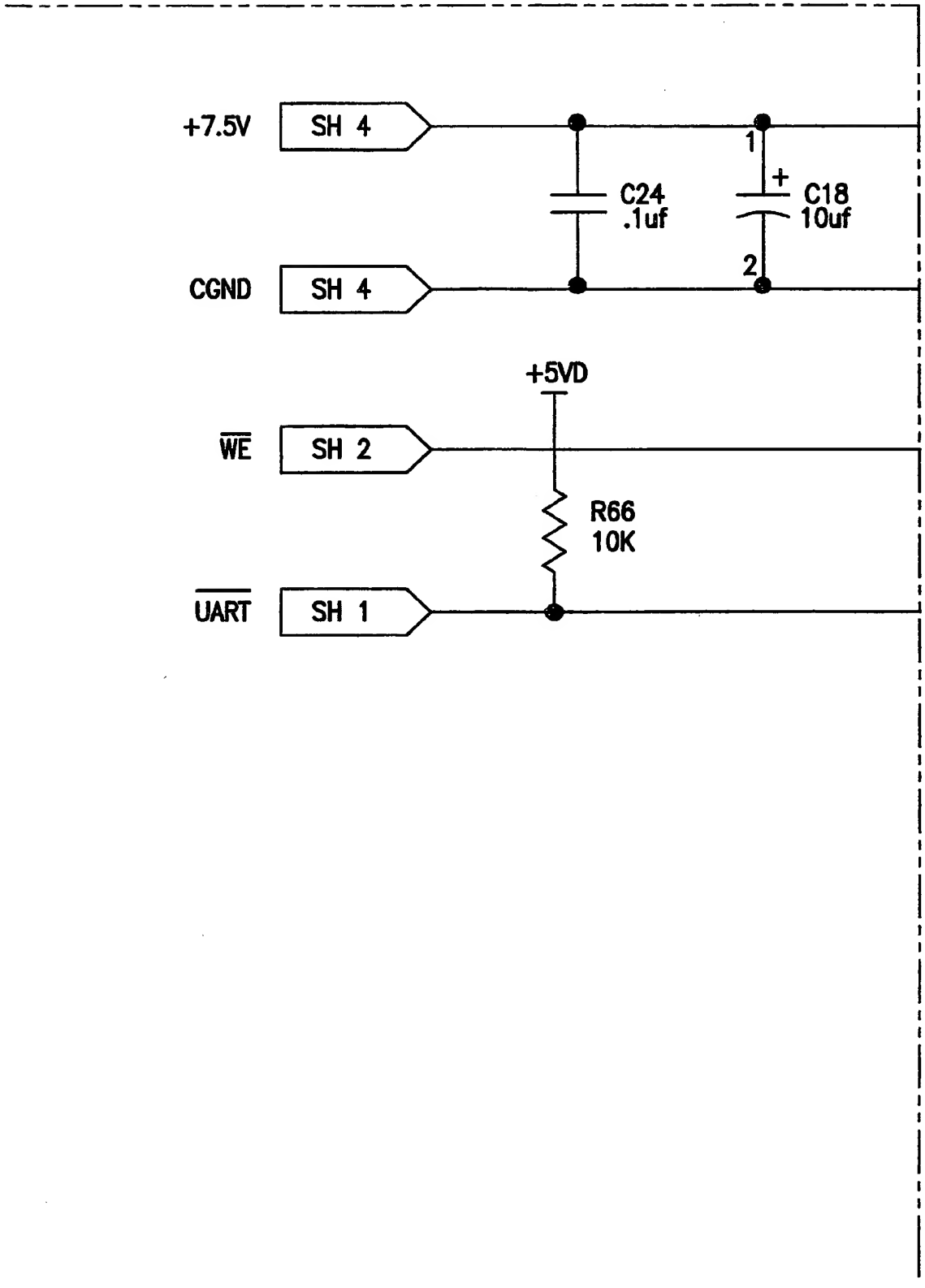


FIG. 64D

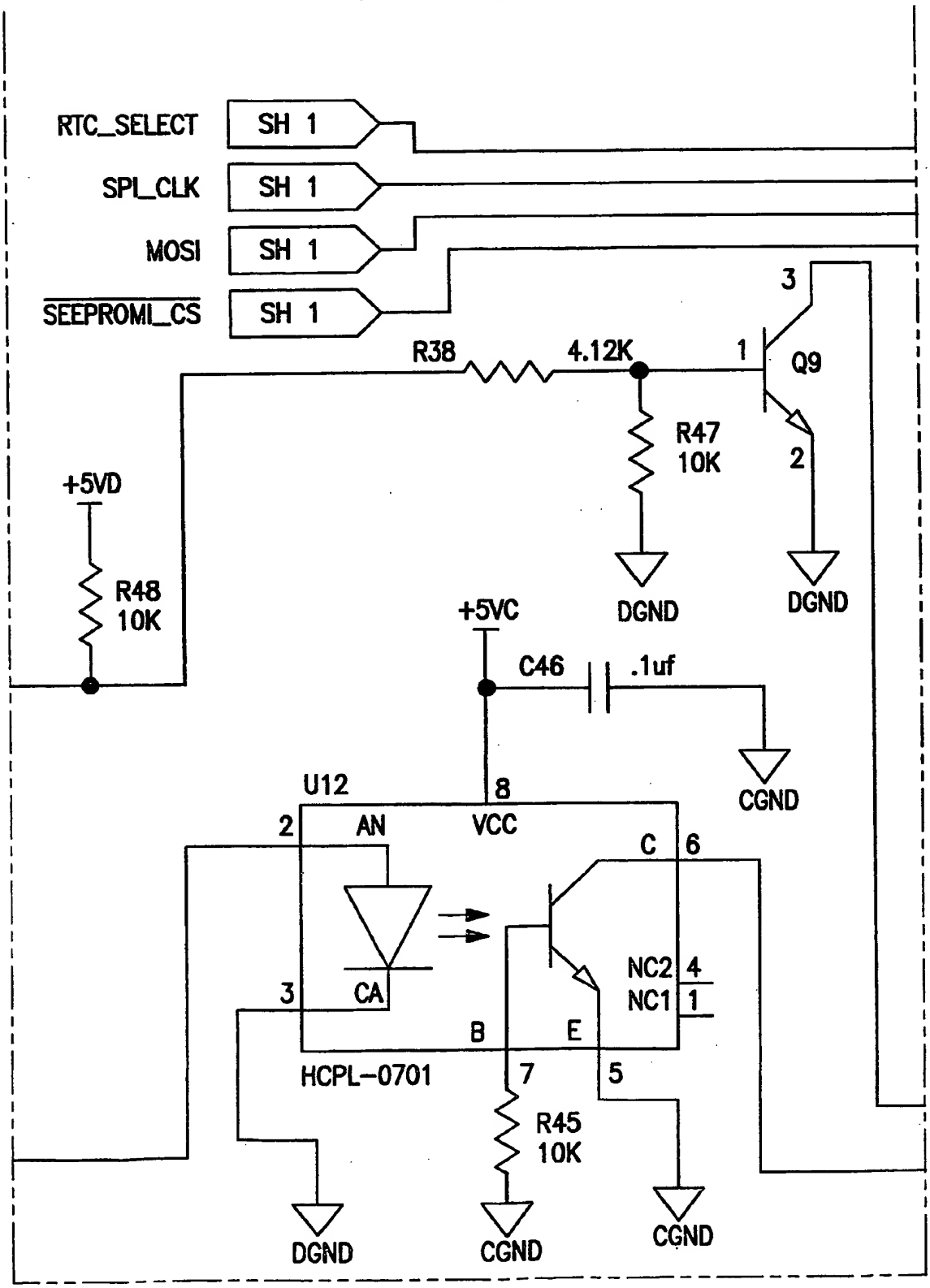

RTC_SELECT
SH 1
SPI_CLK
SH 1
MOSI
SH 1
SEEPROMI_CS
SH 1
R38
4.12K
Q9
R47
10K
+5VD
R48
10K
DGND
DGND
+5VC
C46
.1uf
CGND
U12
2
AN
VCC
8
C
6
NC2
4
NC1
1
3
CA
B
E
HCPL-0701
7
5
R45
10K
DGND
CGND
CGND

FIG. 64E

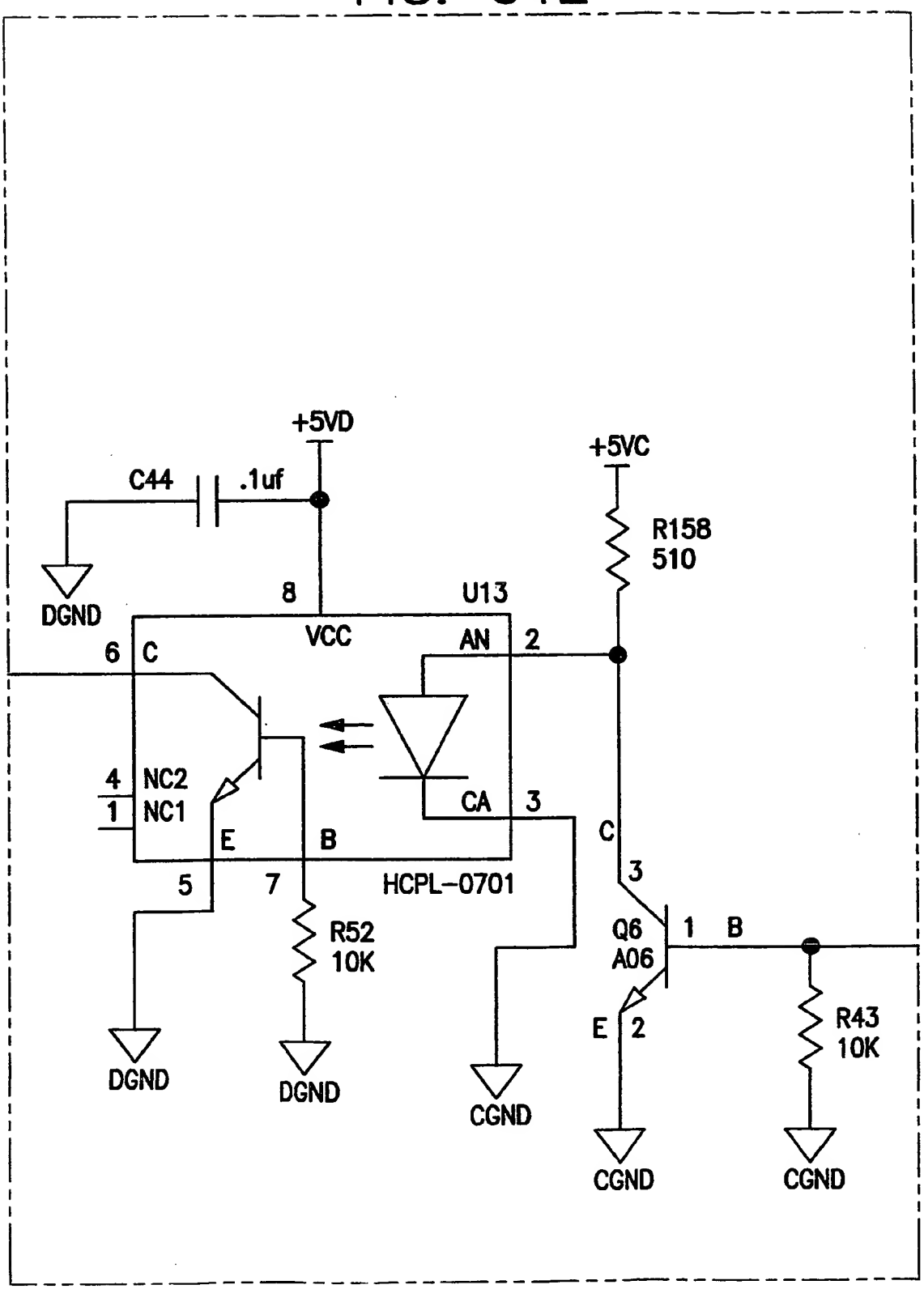

+5VD
C44
.1uf
DGND
8
VCC
U13
6
C
AN
2
+5VC
R158
510
4
NC2
1
NC1
CA
3
E
B
5
7
HCPL-0701
C
3
R52
10K
Q6
A06
1
B
E
2
R43
10K
DGND
DGND
CGND
CGND
CGND

FIG. 64F

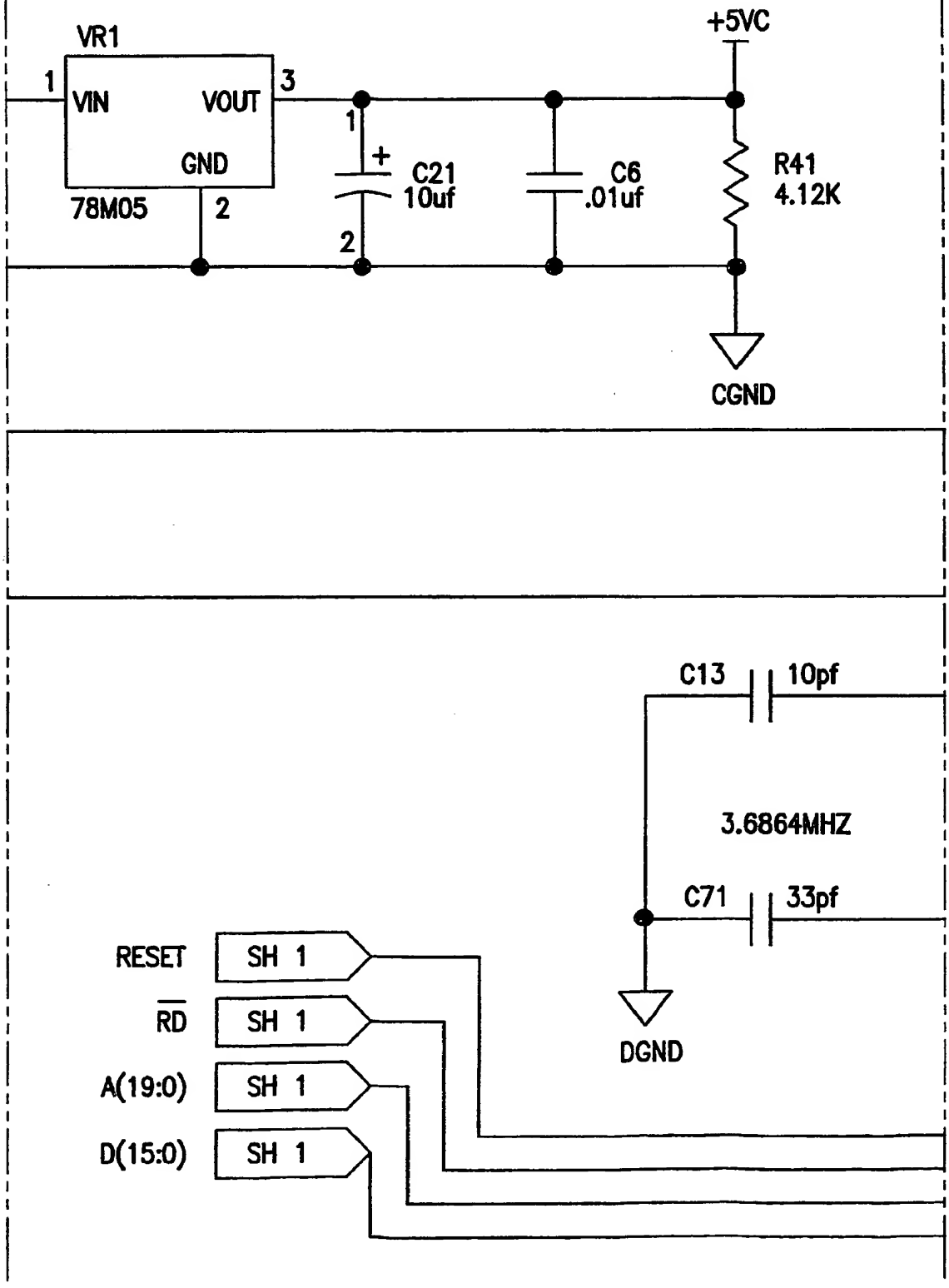

VR1
1
VIN
VOUT
3
GND
78M05
2
1
+
C21
10uf
2
C6
.01uf
+5VC
R41
4.12K
CGND
C13
10pf
3.6864MHZ
C71
33pf
DGND
RESET
SH 1
RD
SH 1
A(19:0)
SH 1
D(15:0)
SH 1

FIG. 64G

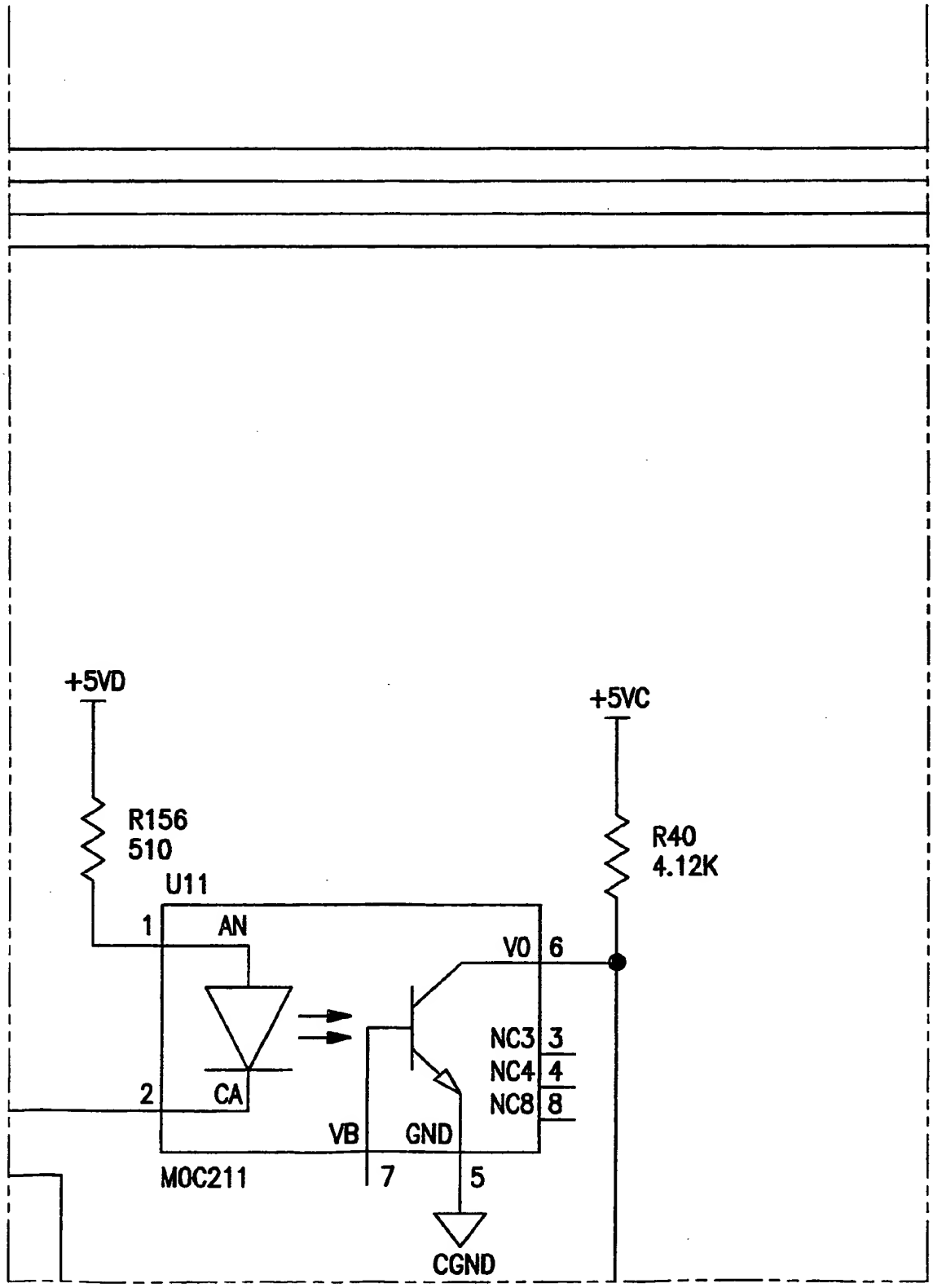

+5VD
+5VC
R156
510
R40
4.12K
U11
1
AN
V0
6
NC3
3
NC4
4
NC8
8
2
CA
VB
GND
MOC211
7
5
CGND

FIG. 64H

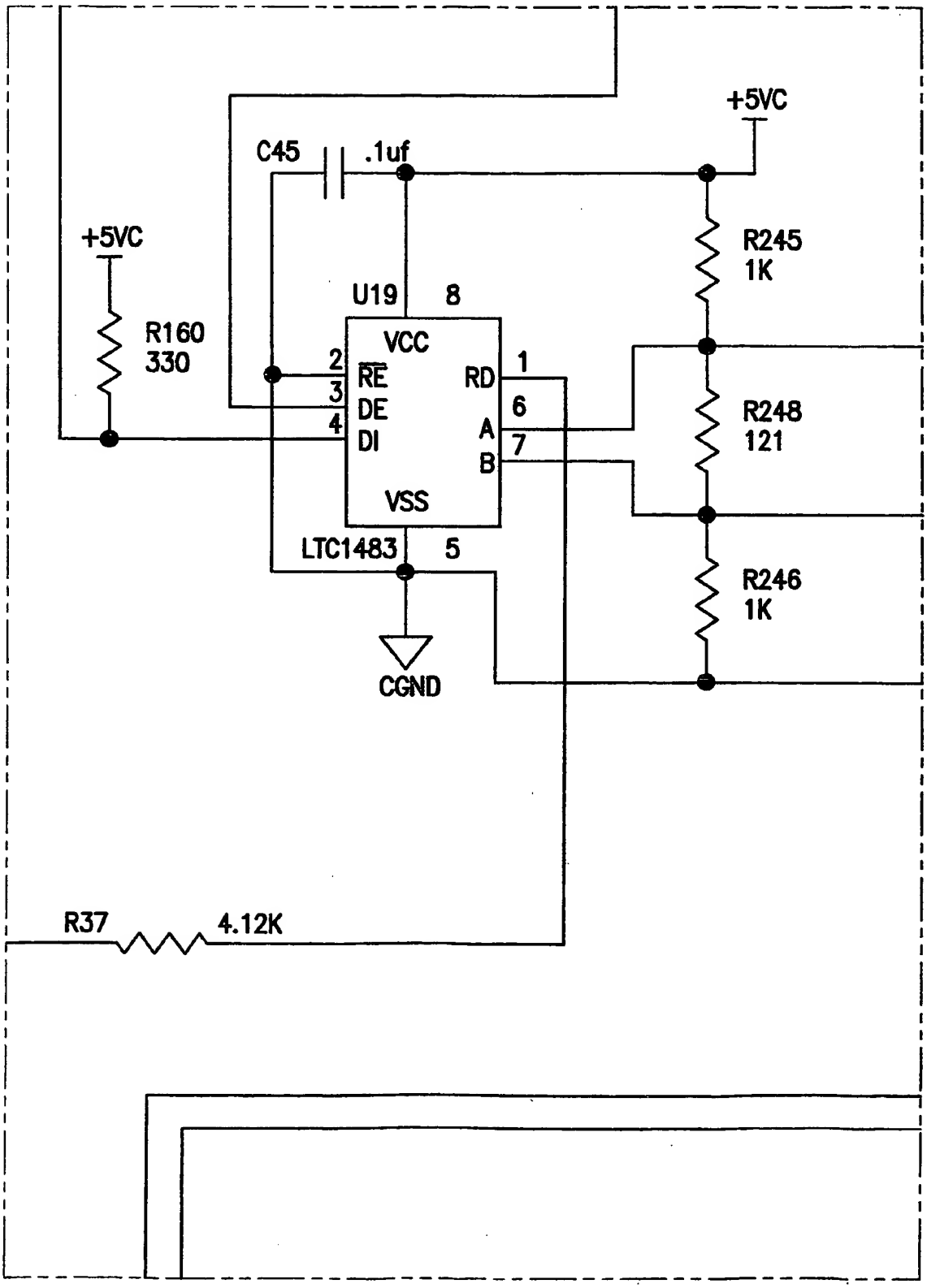

+5VC
C45
.1uf
+5VC
R245
1K
U19
8
R160
330
VCC
2
RE
RD
1
3
DE
6
4
DI
A
7
B
R248
121
VSS
LTC1483
5
R246
1K
CGND
R37
4.12K

FIG. 641

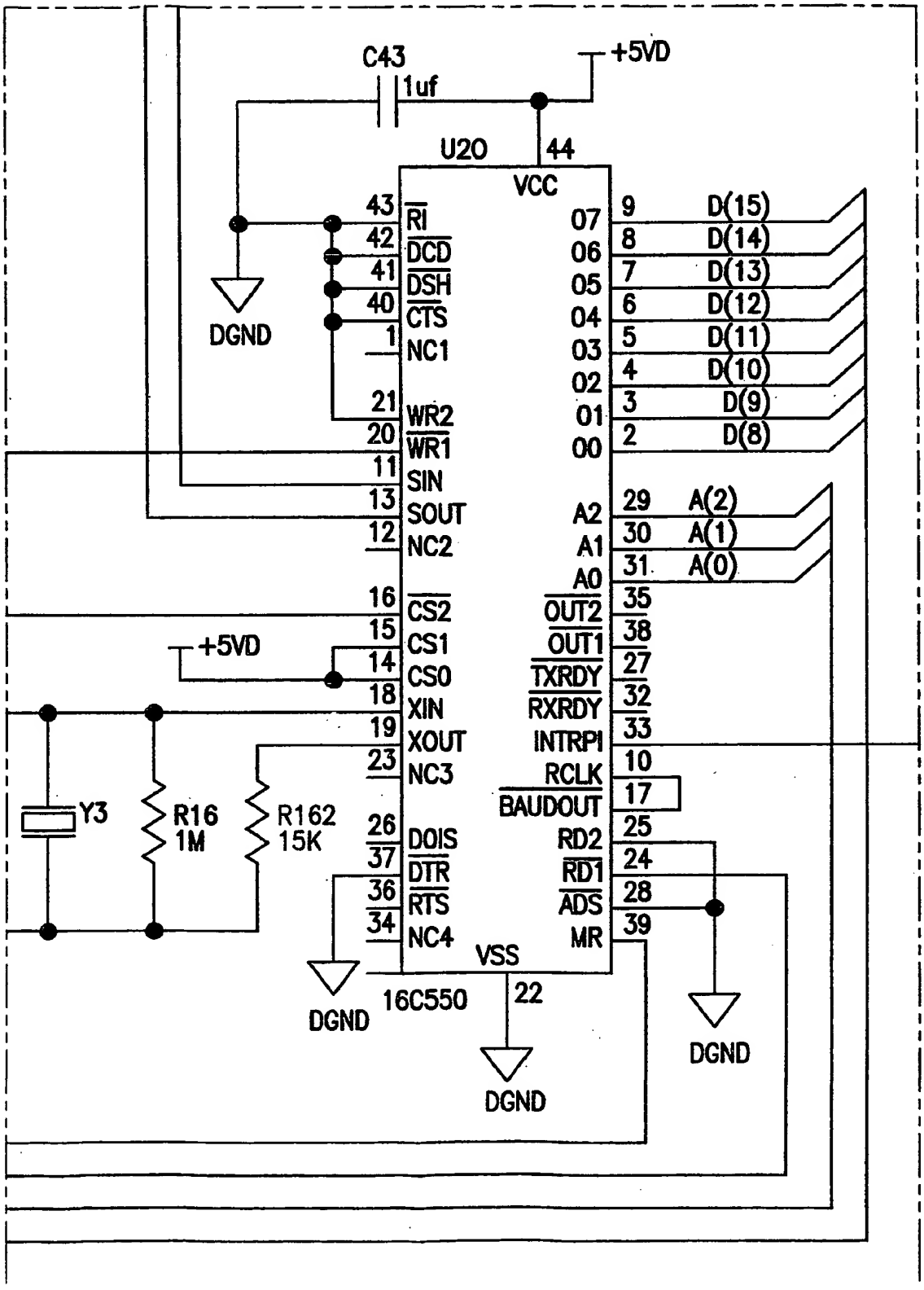

C43
1uf
+5VD
U20
44
VCC
43 RI
42 DCD
41 DSH
40 CTS
1 NC1
21 WR2
20 WR1
11 SIN
13 SOUT
12 NC2
16 CS2
15 CS1
14 CS0
18 XIN
19 XOUT
23 NC3
26 DOIS
37 DTR
36 RTS
34 NC4
07 9 D(15)
06 8 D(14)
05 7 D(13)
04 6 D(12)
03 5 D(11)
02 4 D(10)
01 3 D(9)
00 2 D(8)
A2 29 A(2)
A1 30 A(1)
A0 31 A(0)
OUT2 35
OUT1 38
TXRDY 27
RXRDY 32
INTRPI 33
RCLK 10
BAUDOUT 17
RD2 25
RD1 24
ADS 28
MR 39
VSS
22
16C550
DGND
+5VD
Y3
R16
1M
R162
15K
DGND
DGND
DGND

FIG. 64J

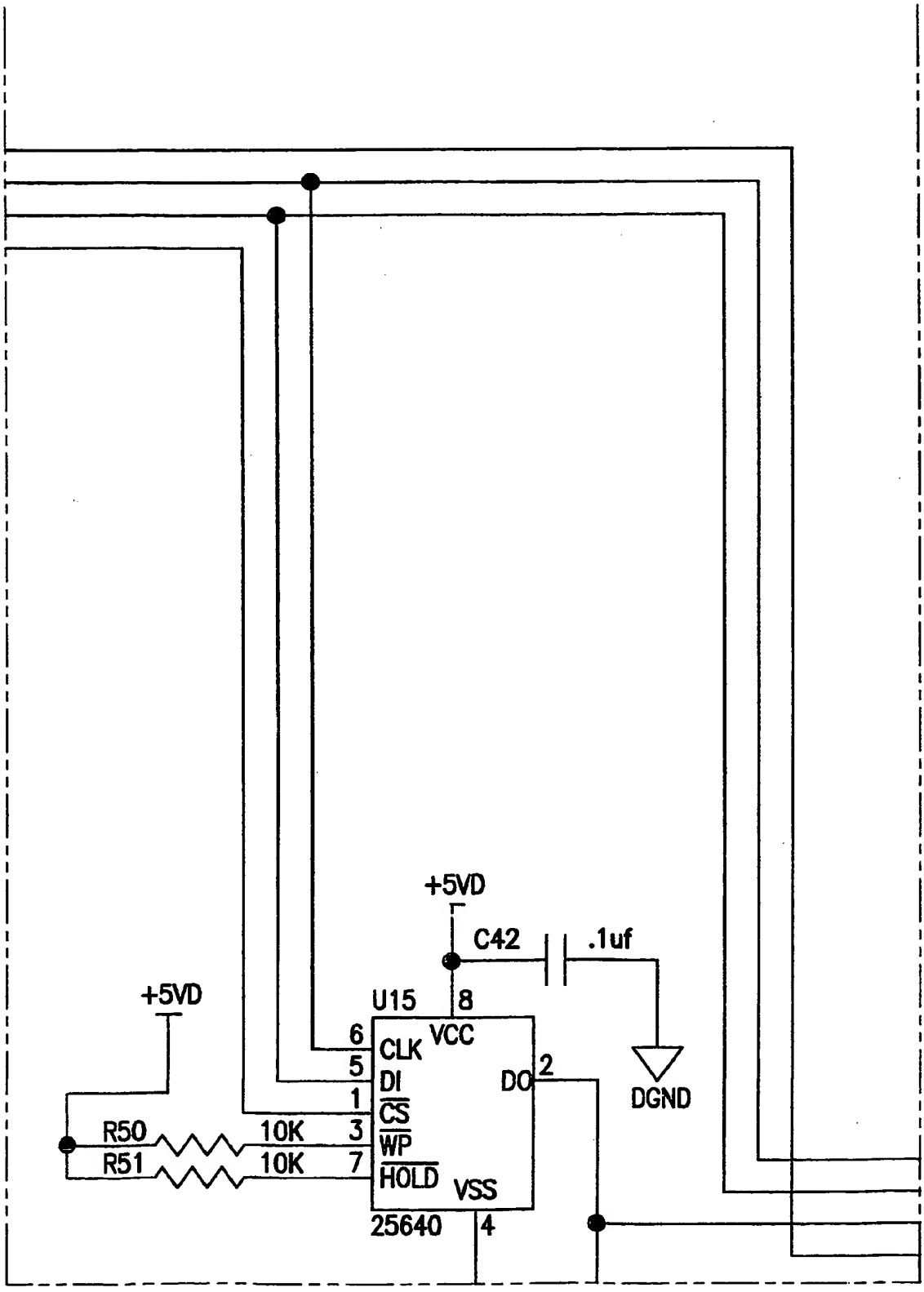

+5VD
C42
.1uf
+5VD
U15
8
VCC
6
CLK
5
DI
1
CS
3
WP
7
HOLD
VSS
4
25640
DO
2
DGND
R50
10K
R51
10K

FIG. 64K

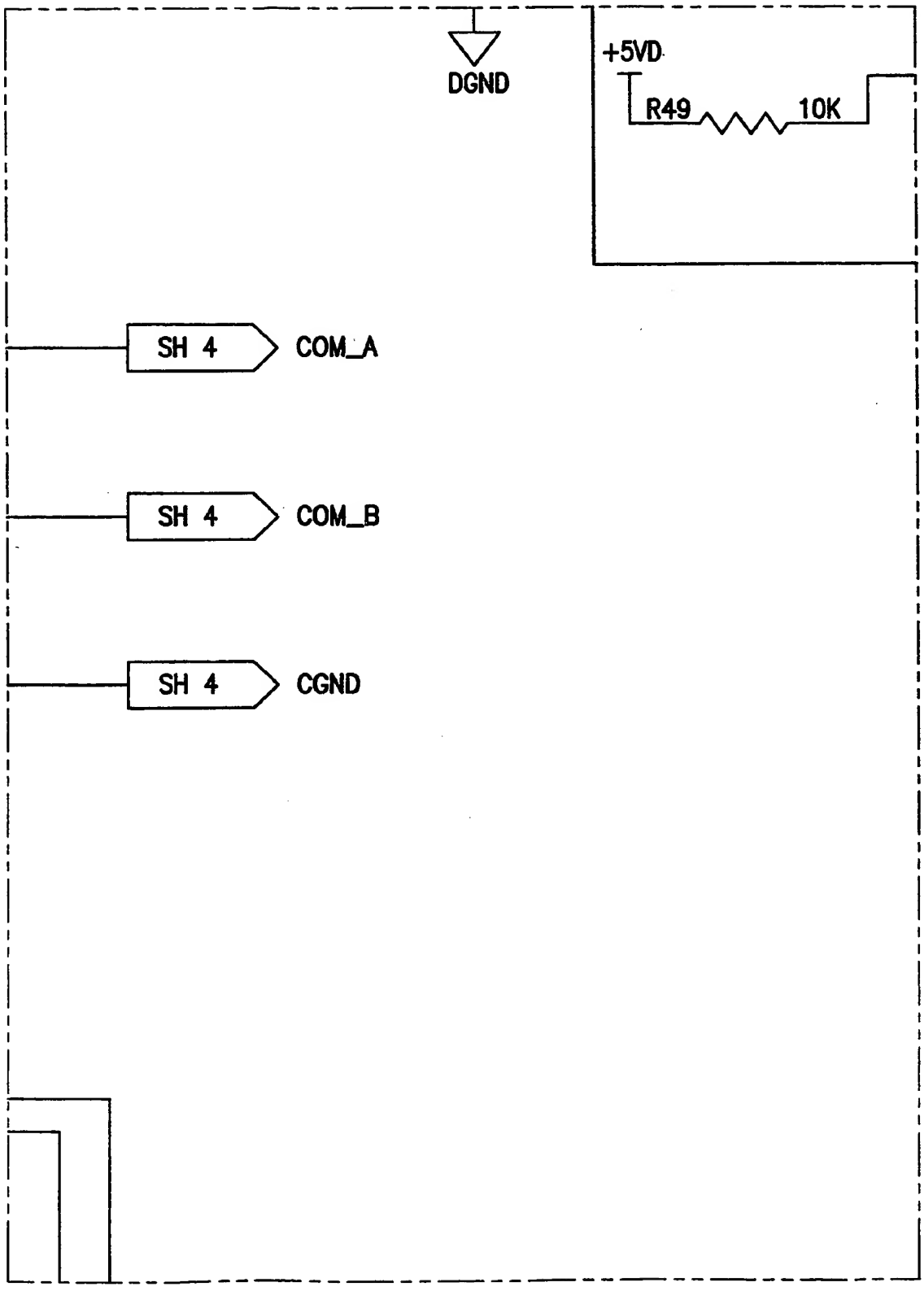


FIG. 64L

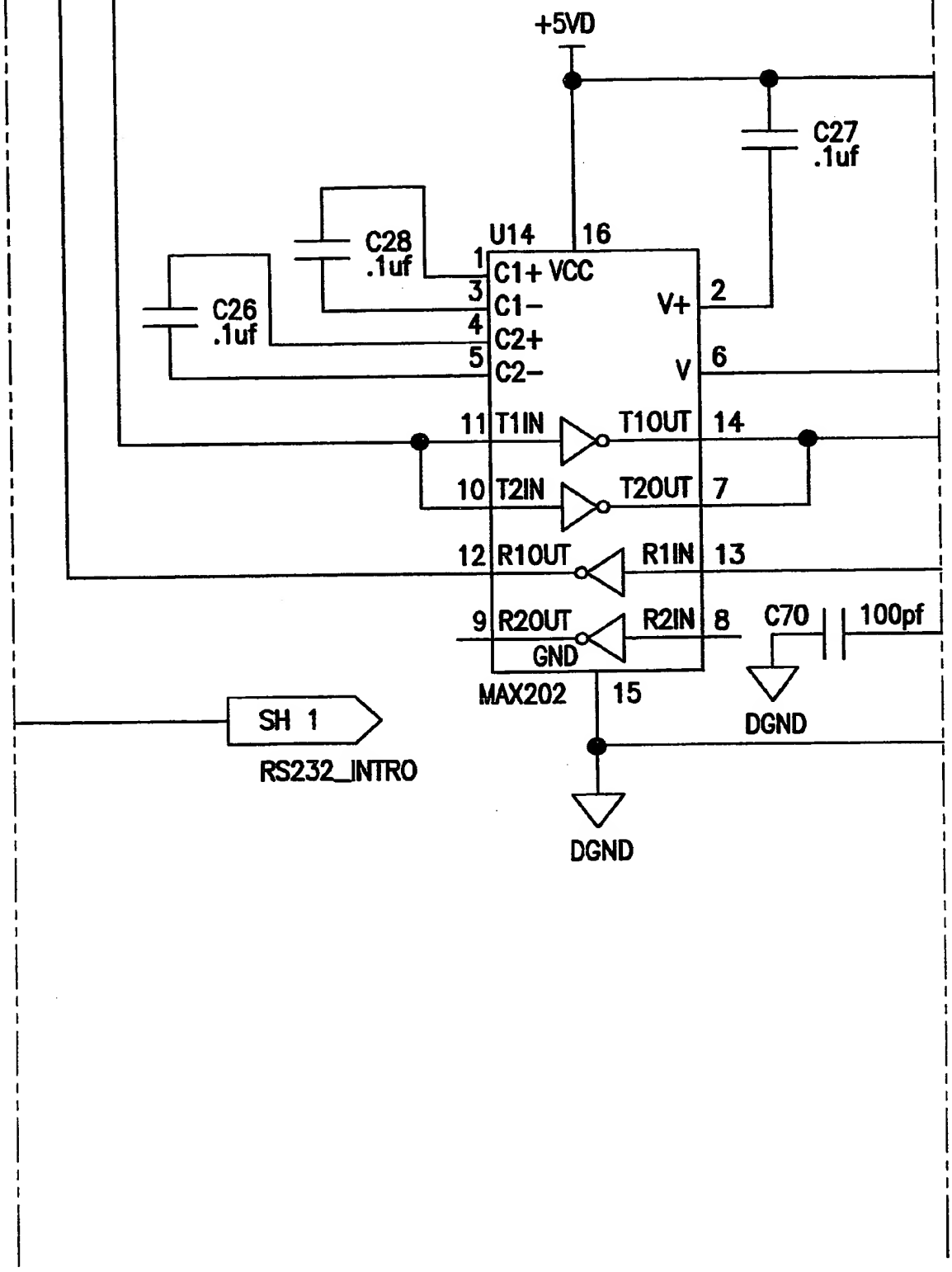

+5VD
C27
.1uf
C28
.1uf
C26
.1uf
U14
16
1
C1+
VCC
3
C1-
V+
2
4
C2+
5
C2-
V
6
11
T1IN
T1OUT
14
10
T2IN
T2OUT
7
12
R1OUT
R1IN
13
9
R2OUT
R2IN
8
GND
MAX202
15
C70
100pf
DGND
SH 1
RS232_INTRO
DGND

FIG. 64M

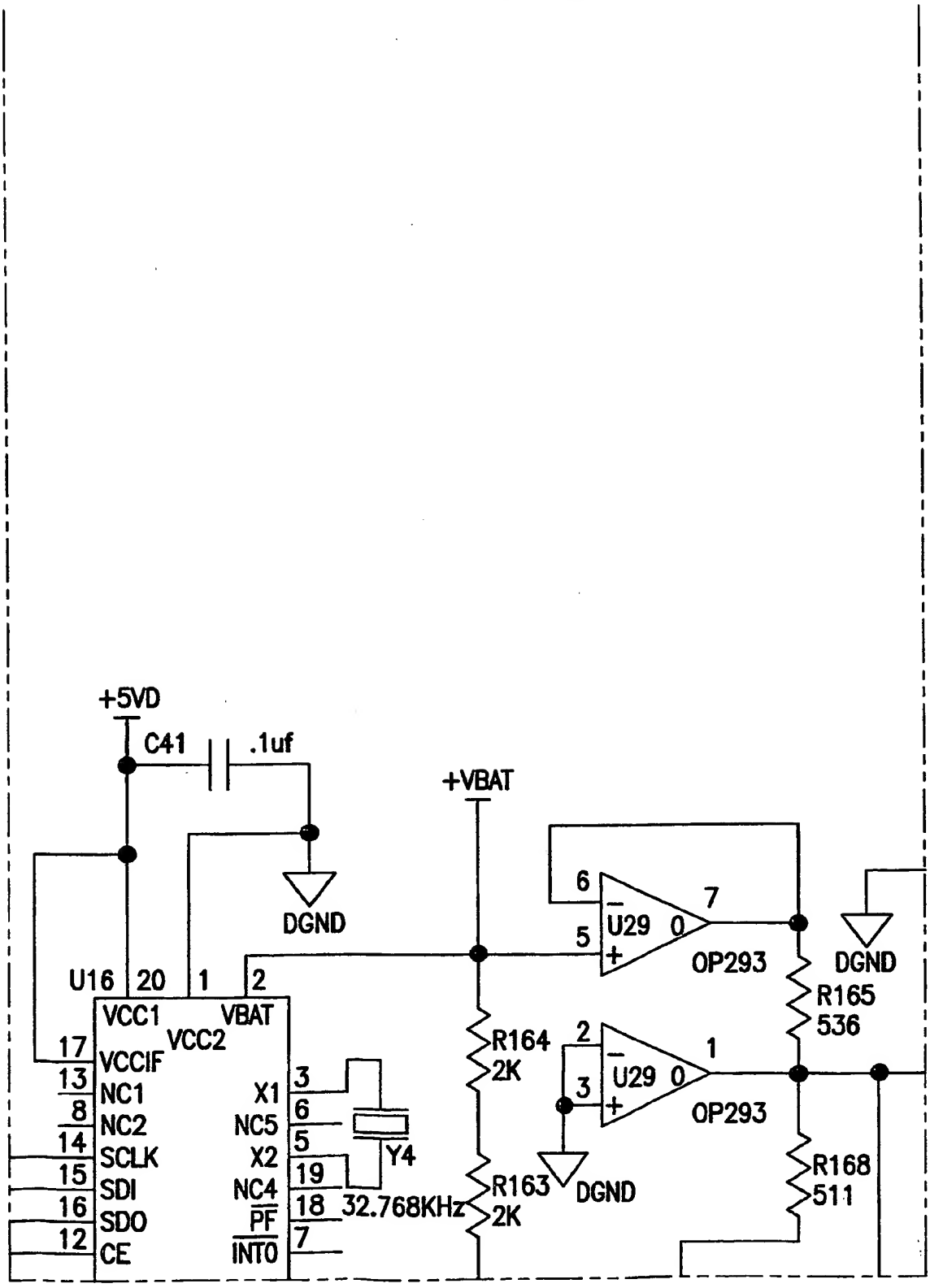

+5VD
C41
.1uf
DGND
+VBAT
U16
20
1
2
VCC1
VBAT
VCC2
17
VCCIF
13
NC1
8
NC2
14
SCLK
15
SDI
16
SDO
12
CE
X1
NC5
X2
NC4
PF
INT0
3
6
5
19
18
7
Y4
32.768KHz
R164
2K
R163
2K
6
5
U29
0
7
OP293
2
3
U29
0
1
OP293
DGND
DGND
R165
536
R168
511

FIG. 64N

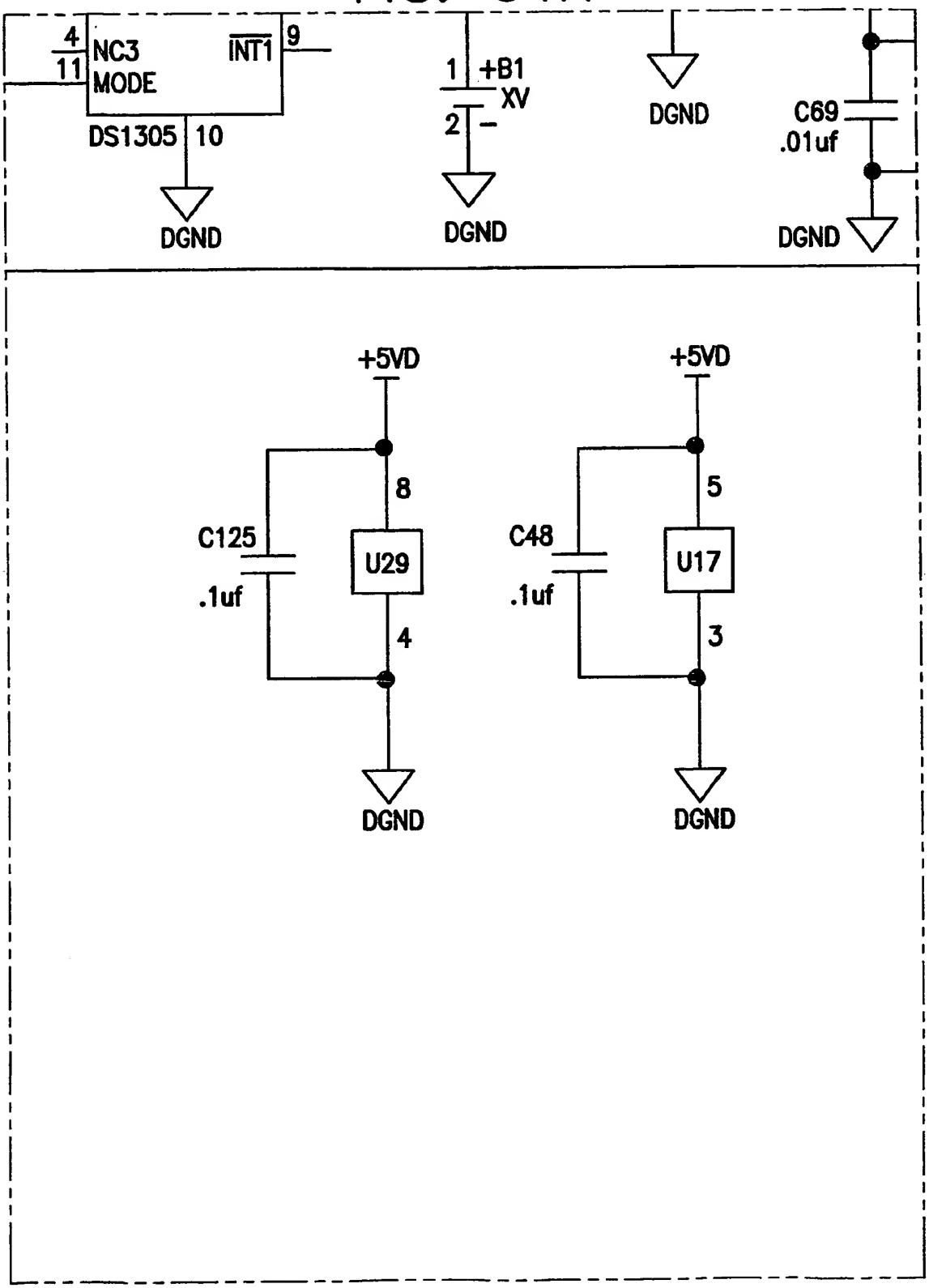

4
11
NC3
MODE
INT1
9
DS1305
10
DGND
1
+B1
XV
2
DGND
DGND
C69
.01uf
DGND
+5VD
8
C125
.1uf
U29
4
DGND
+5VD
5
C48
.1uf
U17
3
DGND

FIG. 640

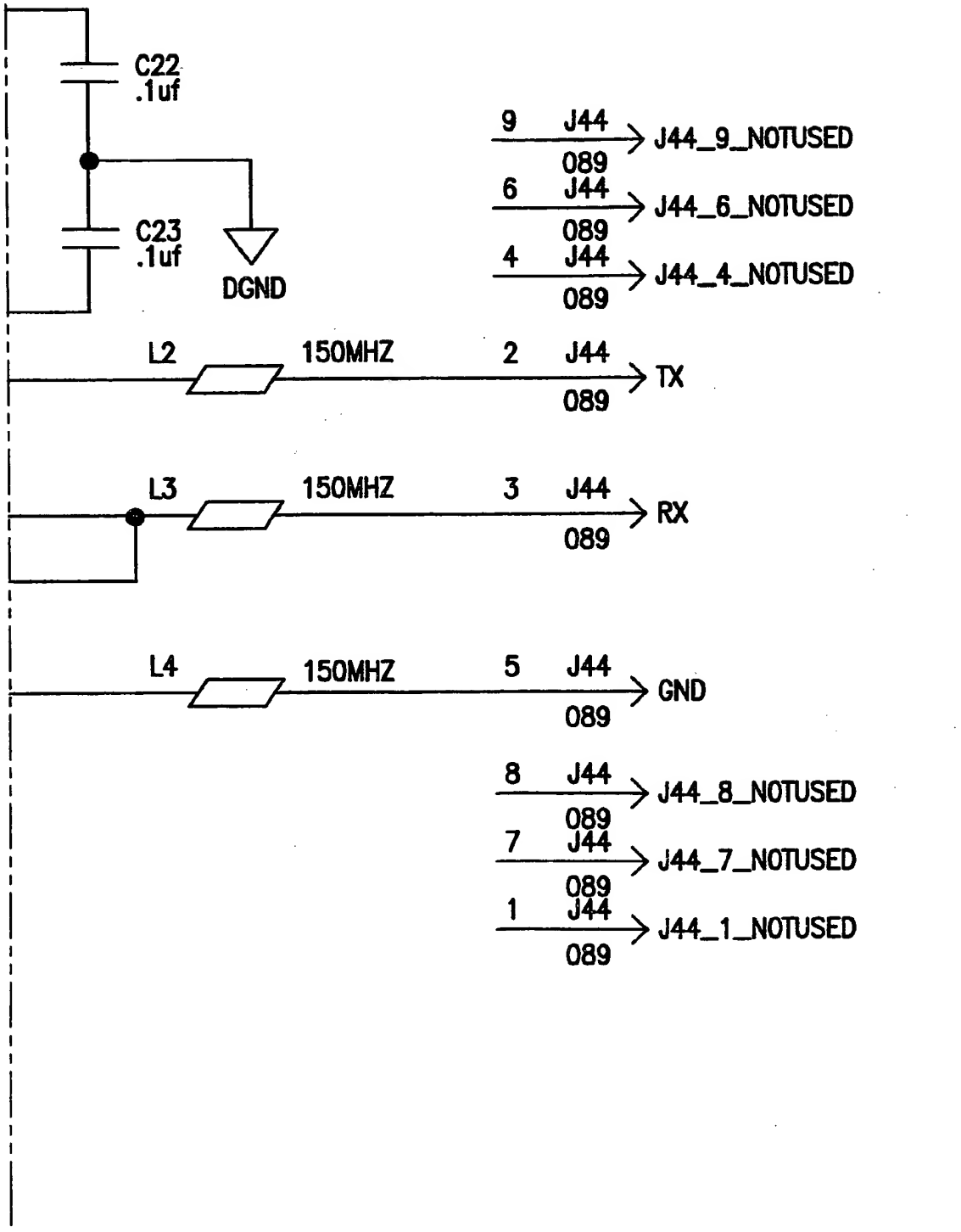

C22
.1uf
C23
.1uf
DGND
9 J44 089
J44_9_NOTUSED
6 J44 089
J44_6_NOTUSED
4 J44 089
J44_4_NOTUSED
L2
150MHZ
2 J44 089
TX
L3
150MHZ
3 J44 089
RX
L4
150MHZ
5 J44 089
GND
8 J44 089
J44_8_NOTUSED
7 J44 089
J44_7_NOTUSED
1 J44 089
J44_1_NOTUSED

FIG. 64P

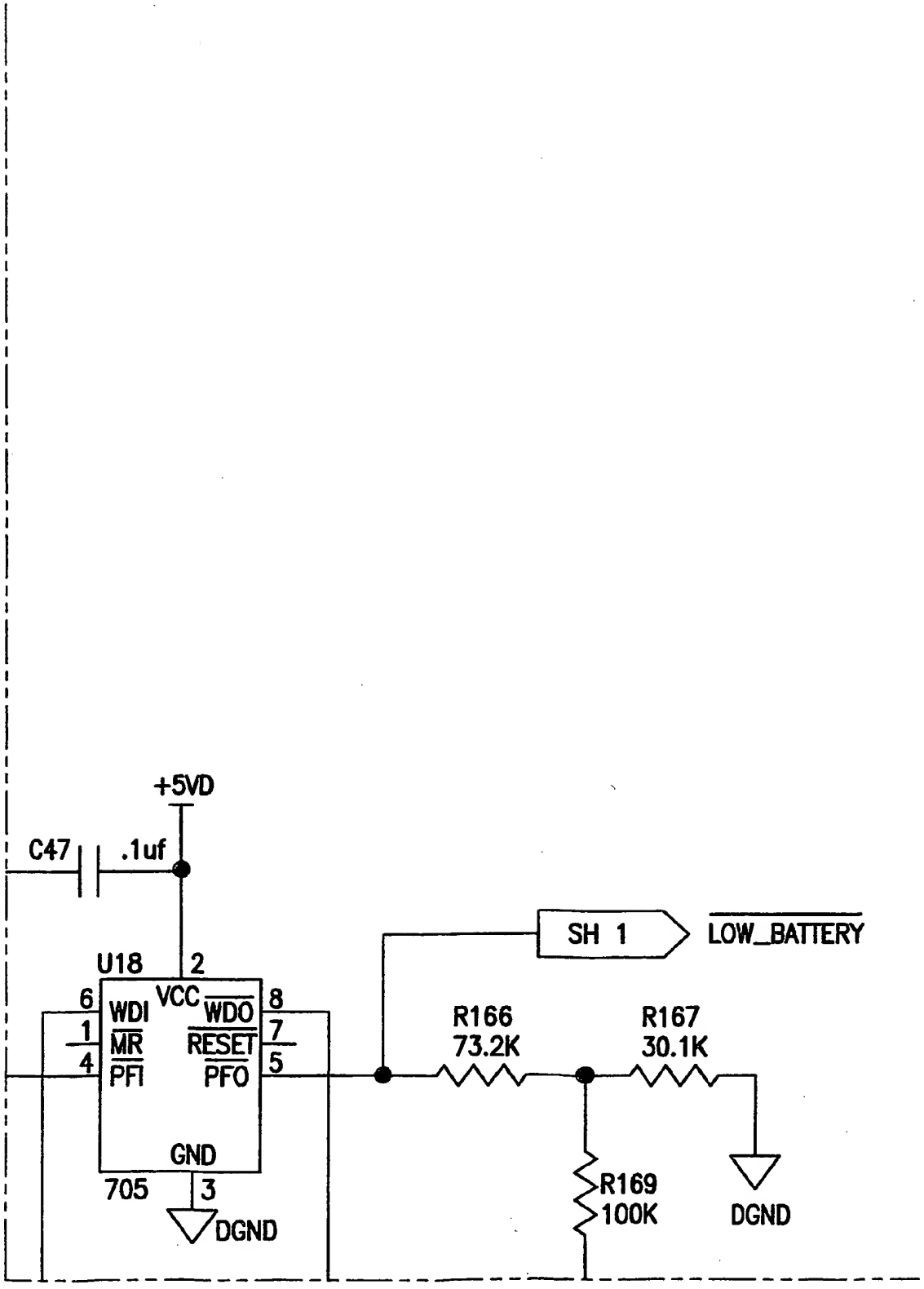

+5VD
C47
.1uf
U18
2
VCC
6
WDI
1
MR
4
PFI
WDO
8
RESET
7
PFO
5
GND
705
3
DGND
SH 1
LOW_BATTERY
R166
73.2K
R167
30.1K
R169
100K
DGND

FIG. 64Q

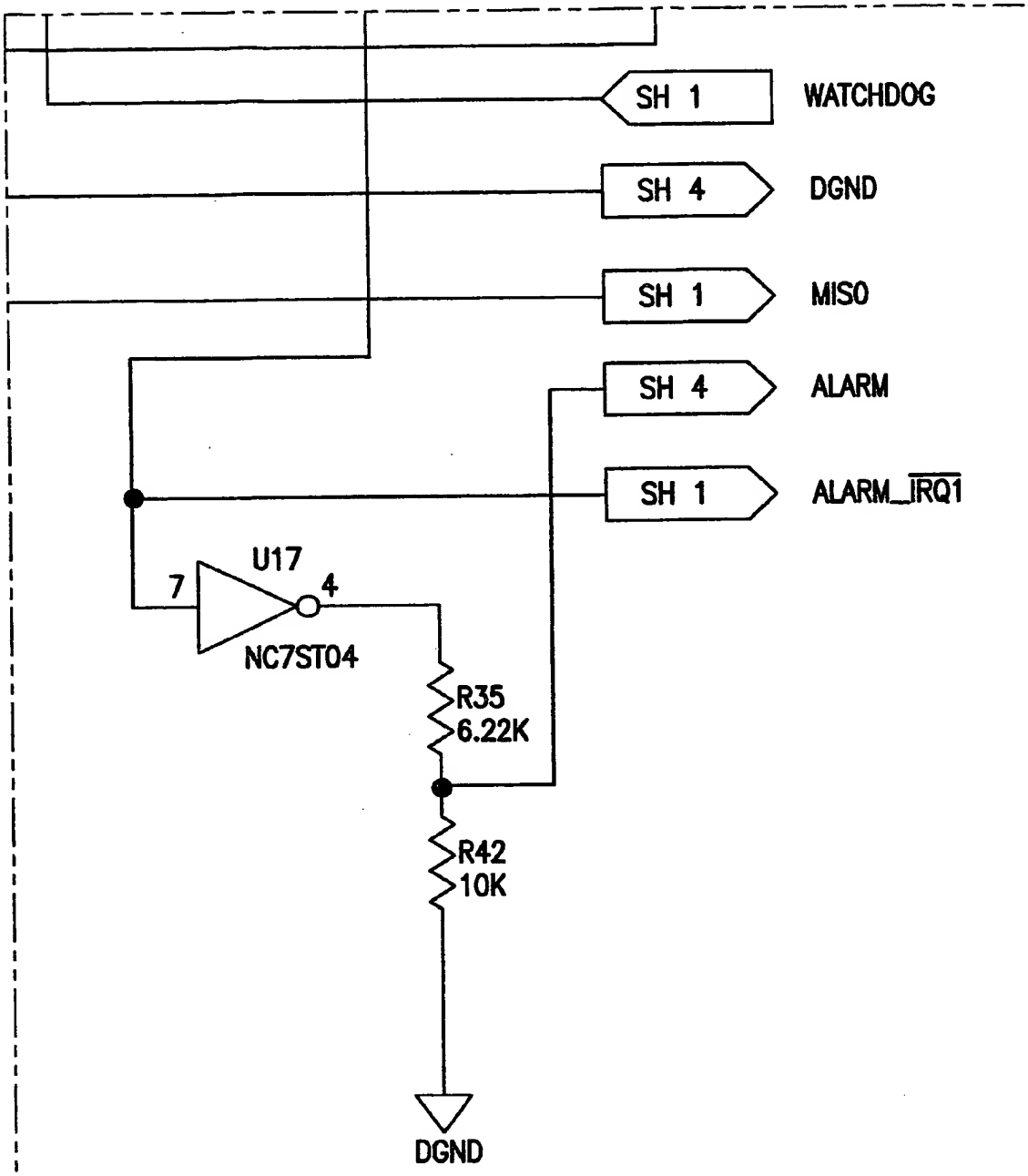

SH 1
WATCHDOG
SH 4
DGND
SH 1
MISO
SH 4
ALARM
SH 1
ALARM_IRQ1
U17
7
4
NC7ST04
R35
6.22K
R42
10K
DGND

FIG. 65

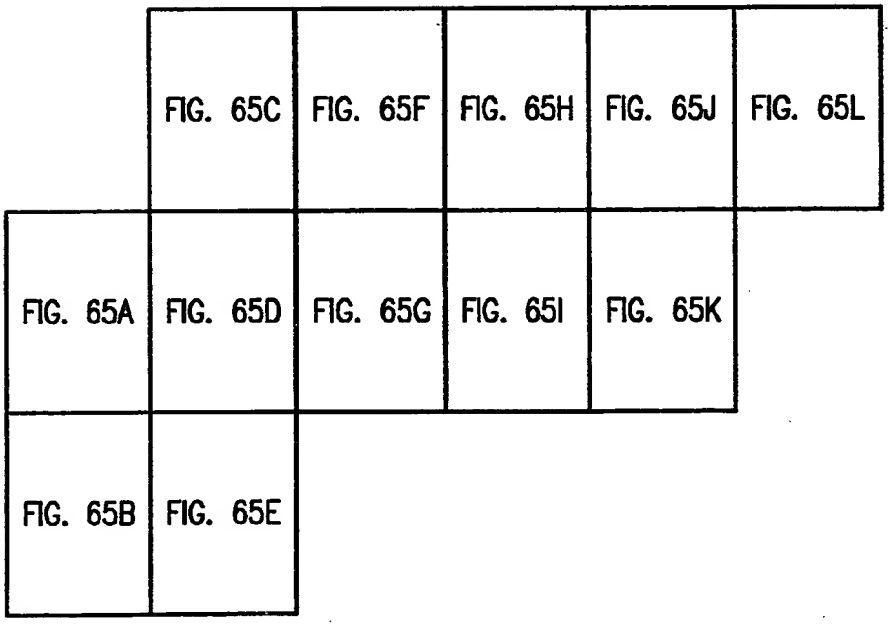


FIG. 65C
FIG. 65F
FIG. 65H
FIG. 65J
FIG. 65L
FIG. 65A
FIG. 65D
FIG. 65G
FIG. 65I
FIG. 65K
FIG. 65B
FIG. 65E

FIG. 65A

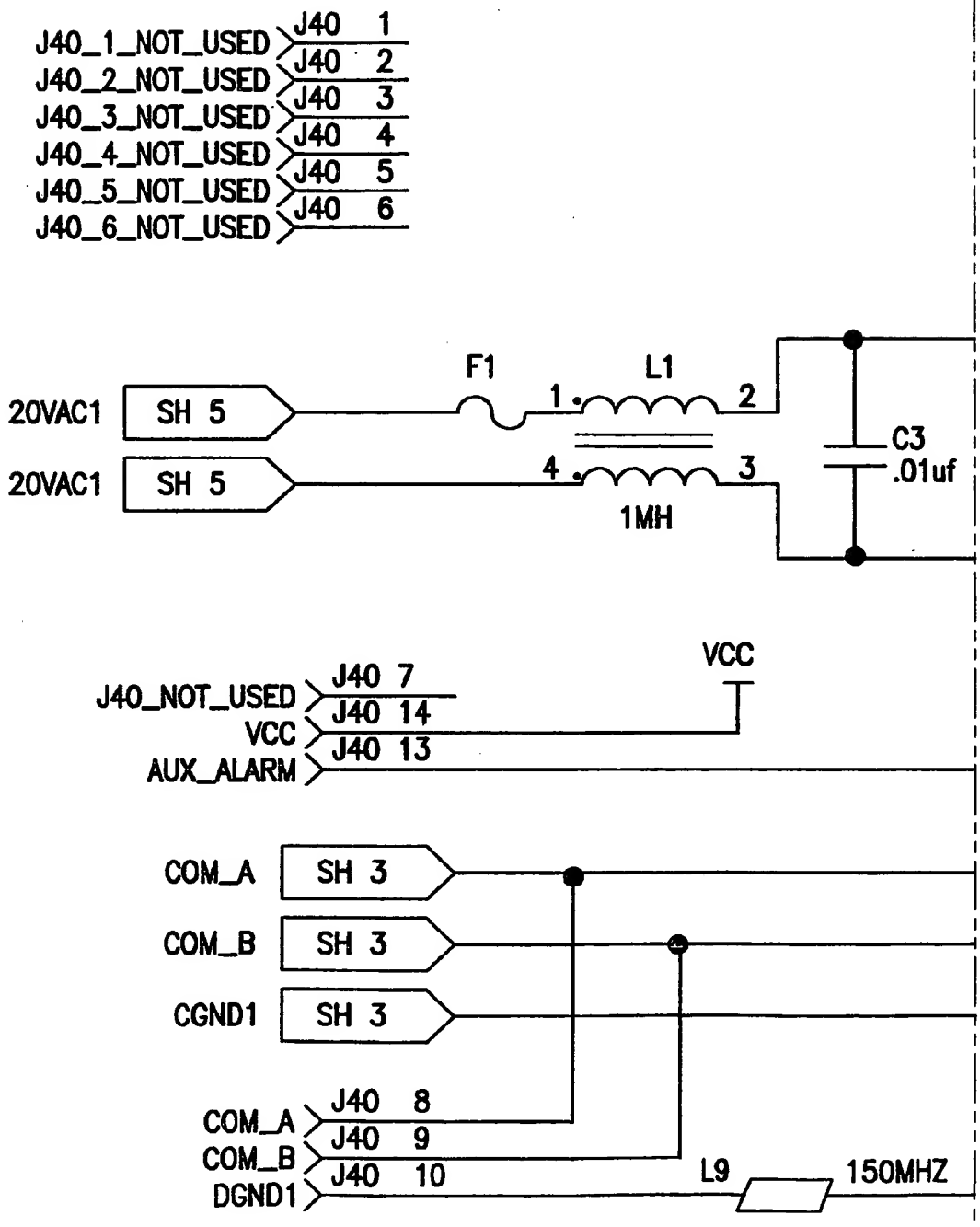

J40_1_NOT_USED
J40_2_NOT_USED
J40_3_NOT_USED
J40_4_NOT_USED
J40_5_NOT_USED
J40_6_NOT_USED
J40 1
J40 2
J40 3
J40 4
J40 5
J40 6
20VAC1
SH 5
20VAC1
SH 5
F1
L1
1
2
4
3
1MH
C3
.01uf
VCC
J40_NOT_USED
VCC
AUX_ALARM
J40 7
J40 14
J40 13
COM_A
SH 3
COM_B
SH 3
CGND1
SH 3
COM_A
COM_B
DGND1
J40 8
J40 9
J40 10
L9
150MHZ

FIG. 65B

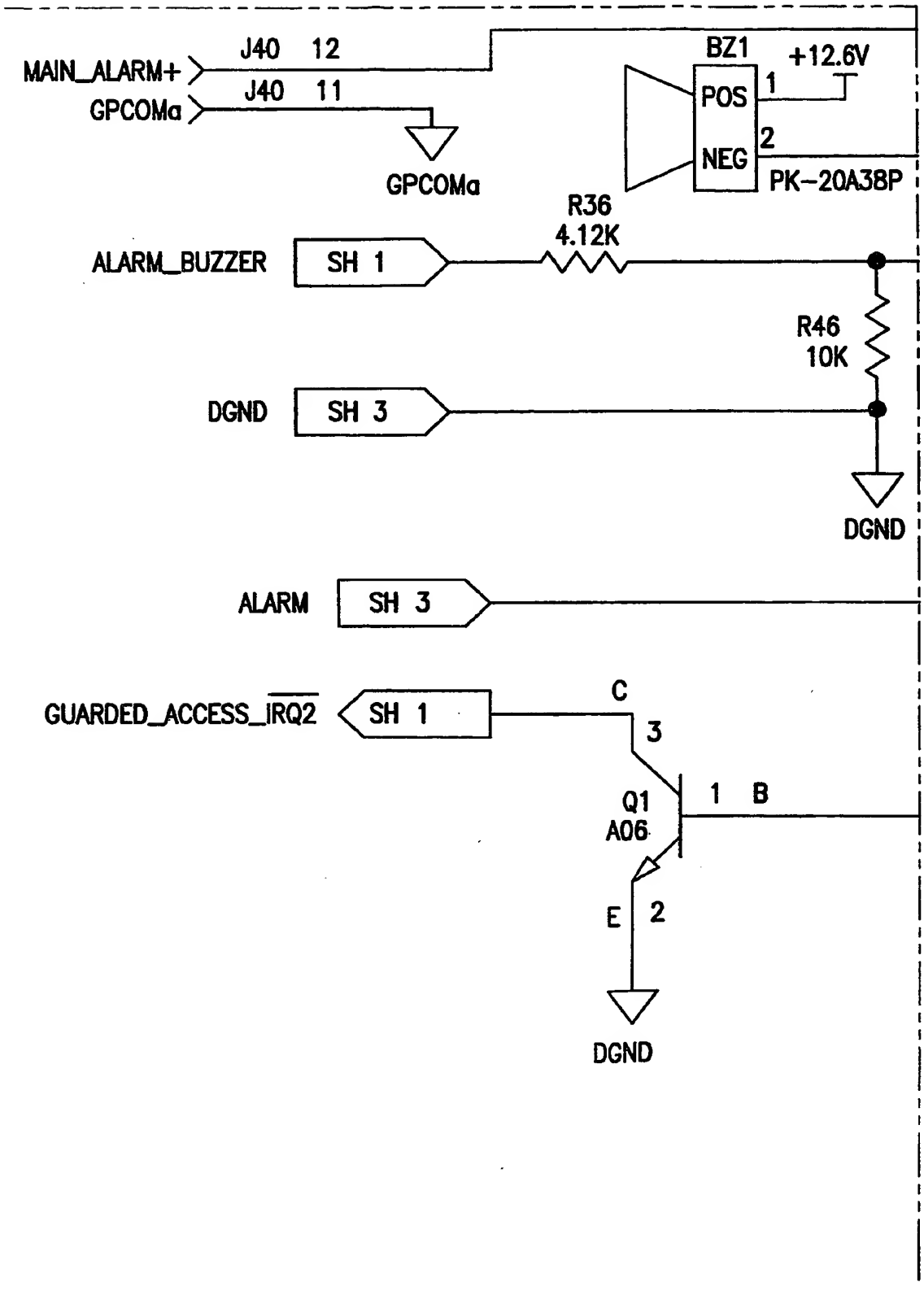

MAIN_ALARM+
J40 12
GPCOMa
J40 11
GPCOMa
BZ1
POS
NEG
1
2
+12.6V
PK-20A38P
ALARM_BUZZER
SH 1
R36
4.12K
R46
10K
DGND
SH 3
DGND
ALARM
SH 3
GUARDED_ACCESS_IRQ2
SH 1
C
3
Q1
A06
1 B
E
2
DGND

FIG. 65C

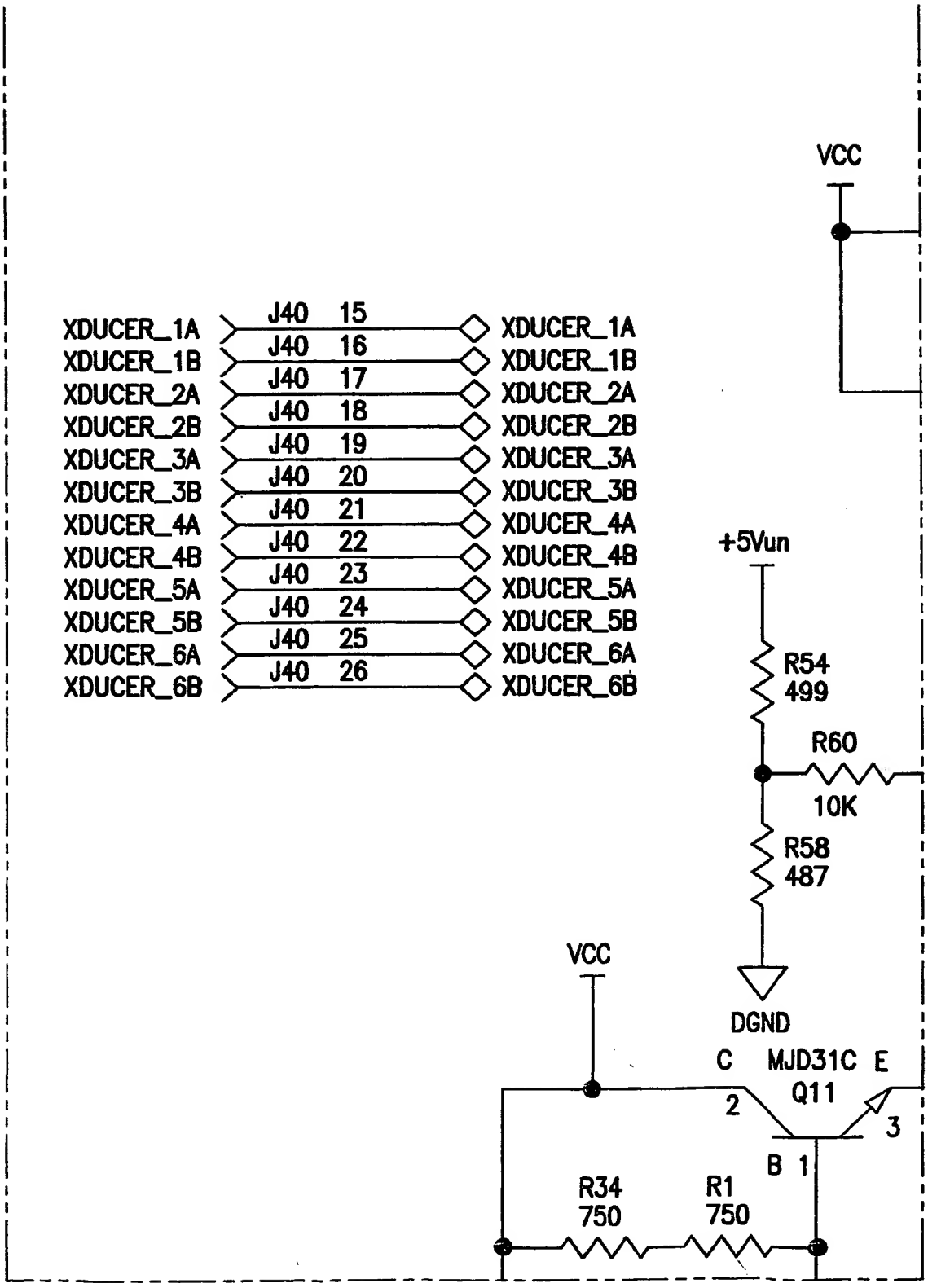

XDUCER_1A
XDUCER_1B
XDUCER_2A
XDUCER_2B
XDUCER_3A
XDUCER_3B
XDUCER_4A
XDUCER_4B
XDUCER_5A
XDUCER_5B
XDUCER_6A
XDUCER_6B
J40 15
J40 16
J40 17
J40 18
J40 19
J40 20
J40 21
J40 22
J40 23
J40 24
J40 25
J40 26
XDUCER_1A
XDUCER_1B
XDUCER_2A
XDUCER_2B
XDUCER_3A
XDUCER_3B
XDUCER_4A
XDUCER_4B
XDUCER_5A
XDUCER_5B
XDUCER_6A
XDUCER_6B
VCC
+5Vun
R54
499
R60
10K
R58
487
DGND
VCC
C
MJD31C
E
Q11
2
3
B
1
R34
750
R1
750

FIG. 65D

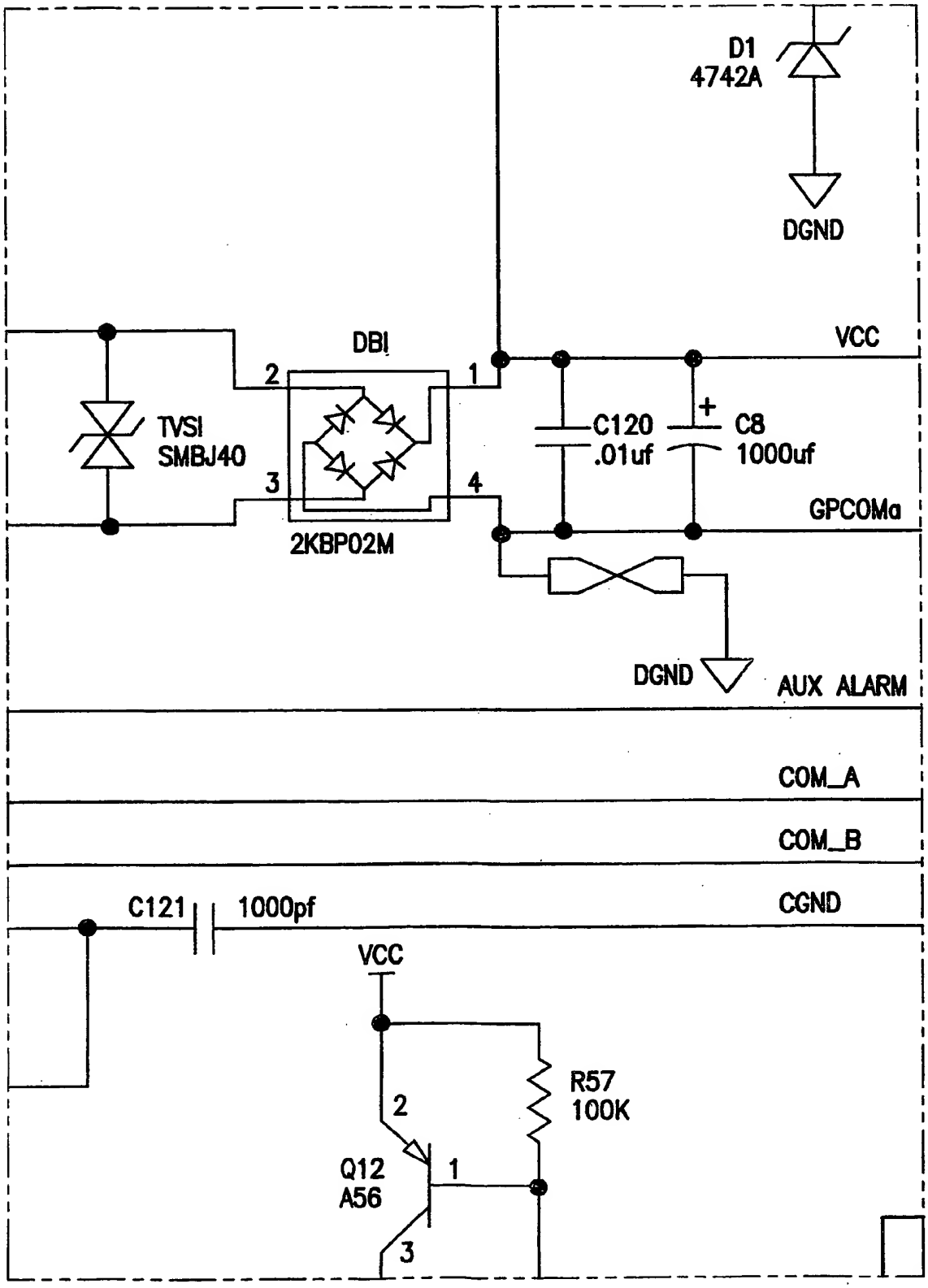

D1
4742A
DGND
DBI
2
1
3
4
2KBP02M
TVSI
SMBJ40
VCC
C120
.01uf
C8
1000uf
GPCOMa
DGND
AUX ALARM
COM_A
COM_B
C121
1000pf
CGND
VCC
R57
100K
Q12
A56
2
1
3

FIG. 65E

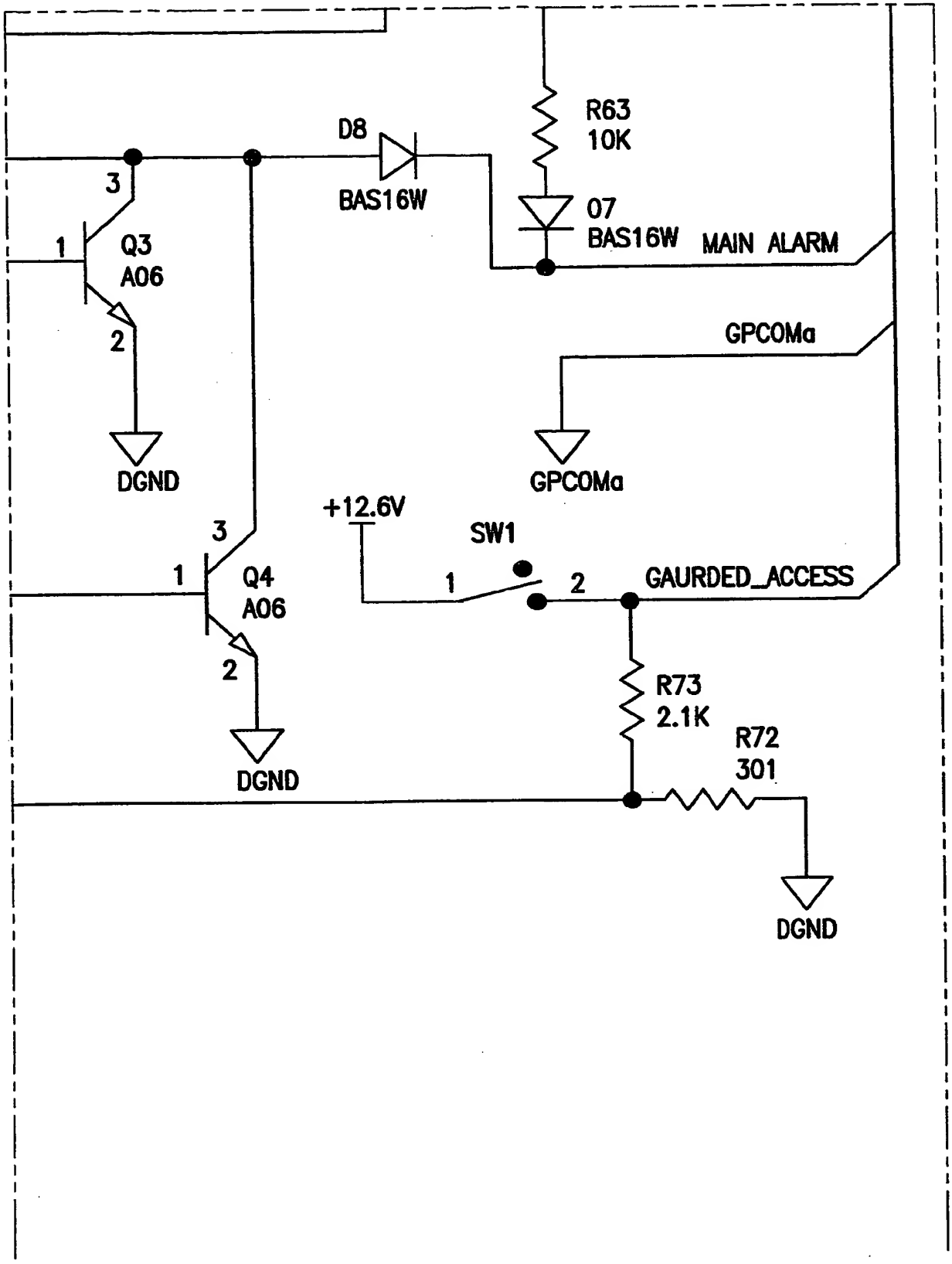

R63
10K
D8
BAS16W
07
BAS16W
MAIN ALARM
3
1
Q3
A06
2
GPCOMa
DGND
GPCOMa
+12.6V
SW1
3
1
Q4
A06
2
1
2
GAURDED_ACCESS
R73
2.1K
R72
301
DGND
DGND

FIG. 65F

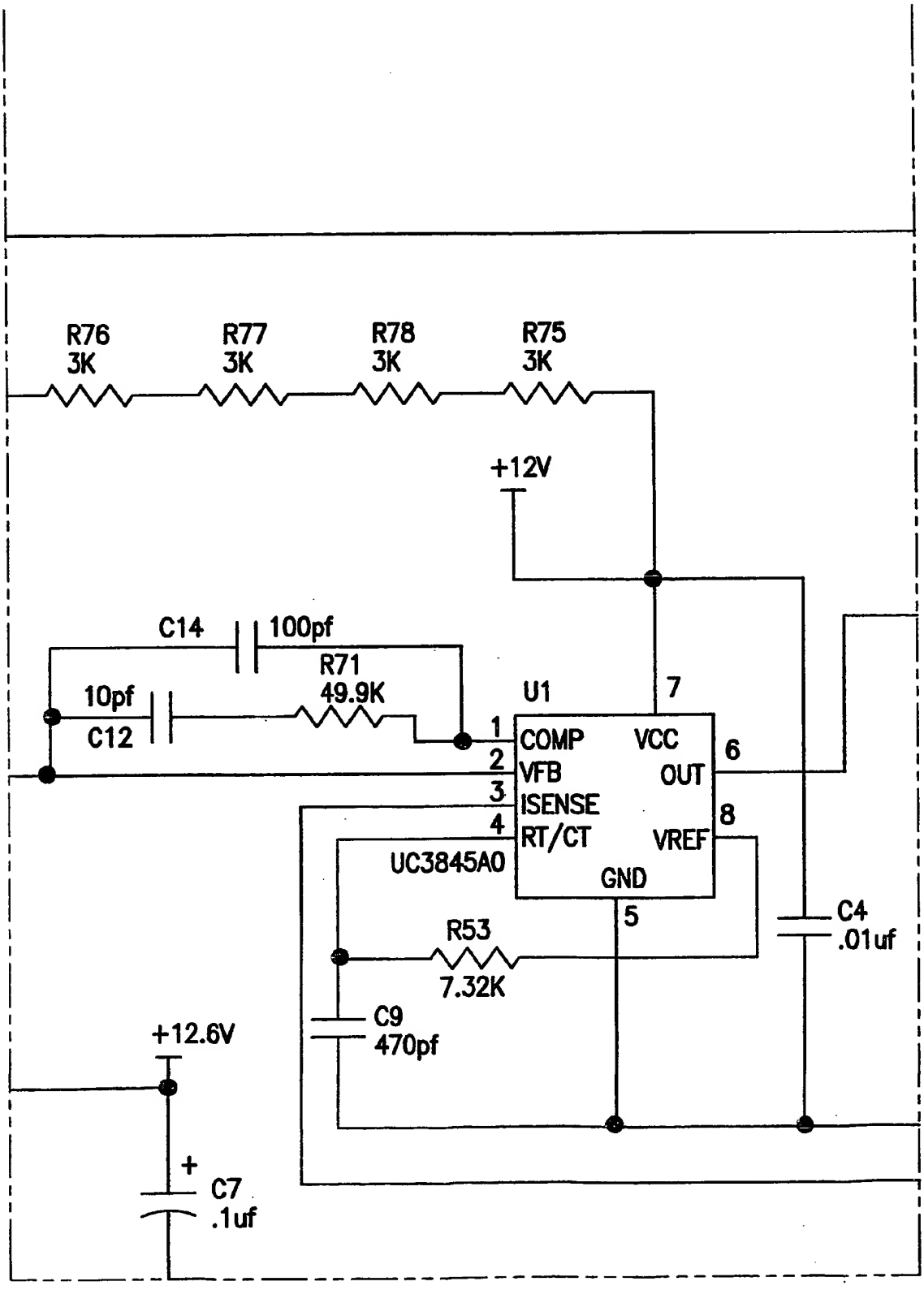

R76
3K
R77
3K
R78
3K
R75
3K
+12V
C14
100pf
R71
49.9K
10pf
C12
U1
7
1
COMP
VCC
6
2
VFB
OUT
3
ISENSE
4
RT/CT
VREF
8
UC3845A0
GND
5
C4
.01uf
R53
7.32K
C9
470pf
+12.6V
+
C7
.1uf

FIG. 65G

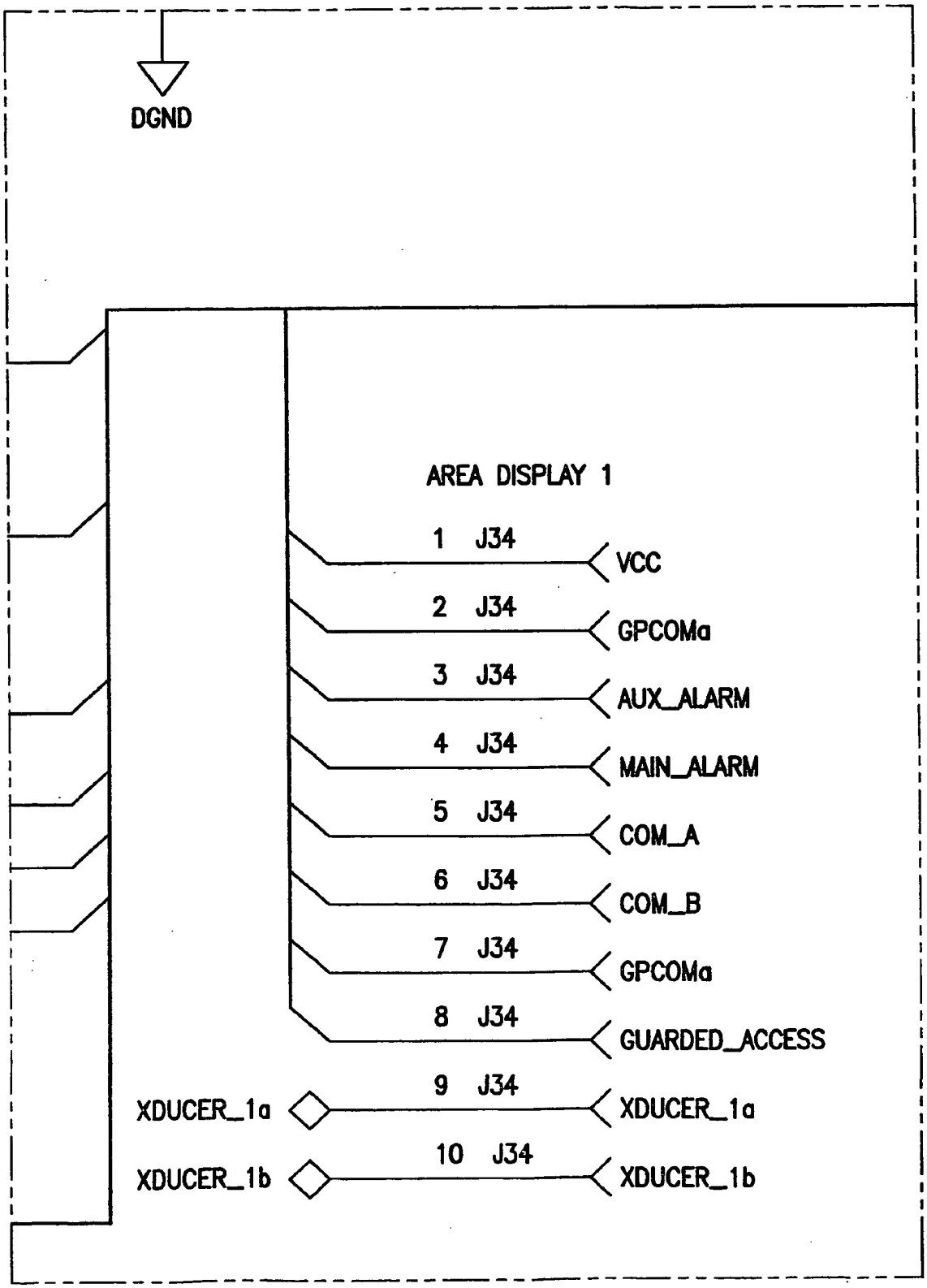

DGND
AREA DISPLAY 1
1 J34
VCC
2 J34
GPCOMa
3 J34
AUX_ALARM
4 J34
MAIN_ALARM
5 J34
COM_A
6 J34
COM_B
7 J34
GPCOMa
8 J34
GUARDED_ACCESS
XDUCER_1a
9 J34
XDUCER_1a
XDUCER_1b
10 J34
XDUCER_1b

FIG. 65H

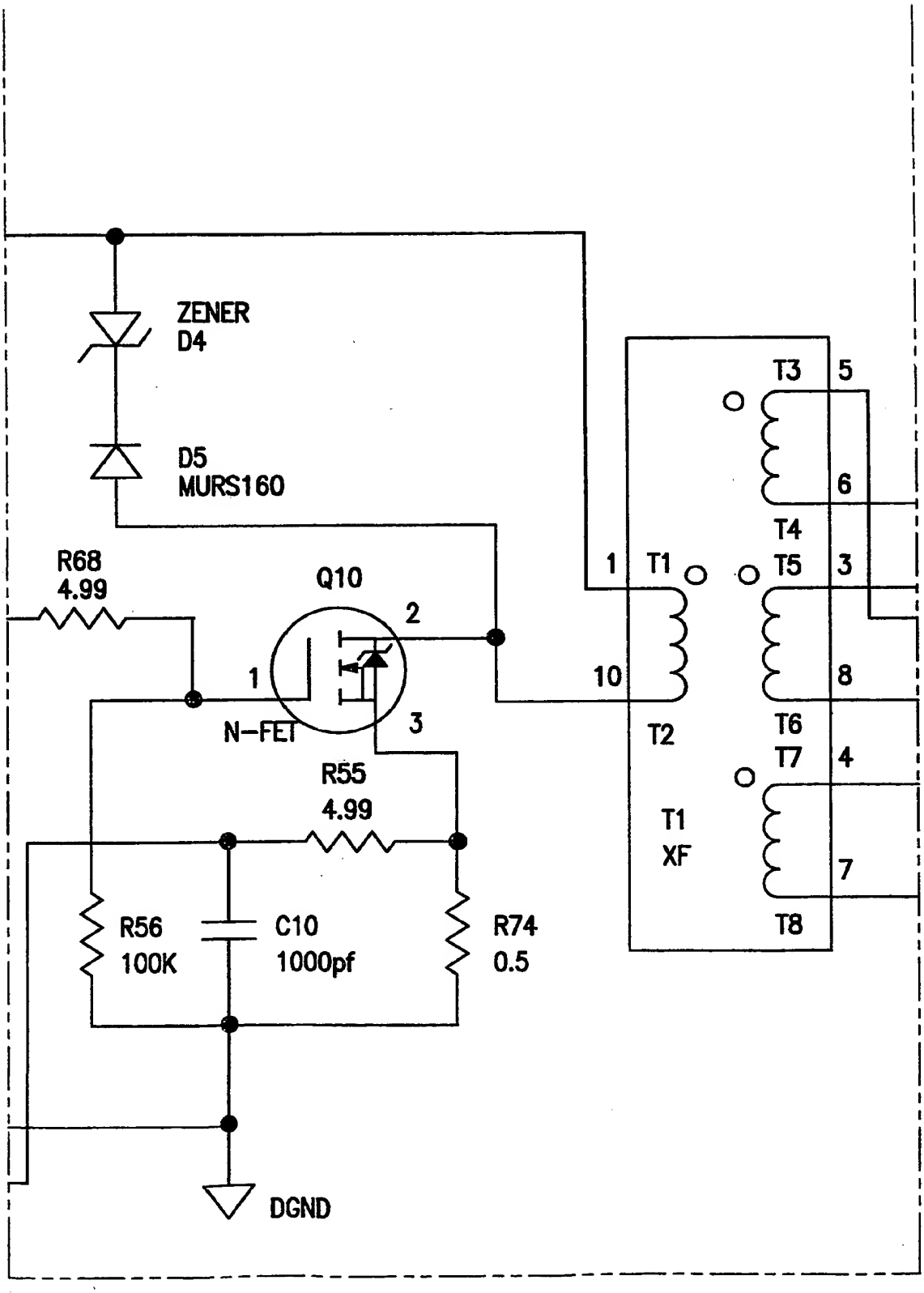

ZENER
D4
D5
MURS160
R68
4.99
Q10
2
1
3
N-FET
R55
4.99
R56
100K
C10
1000pf
R74
0.5
DGND
1
T1
10
T2
T3
5
6
T4
T5
3
8
T6
T7
4
7
T8
T1
XF

FIG. 651

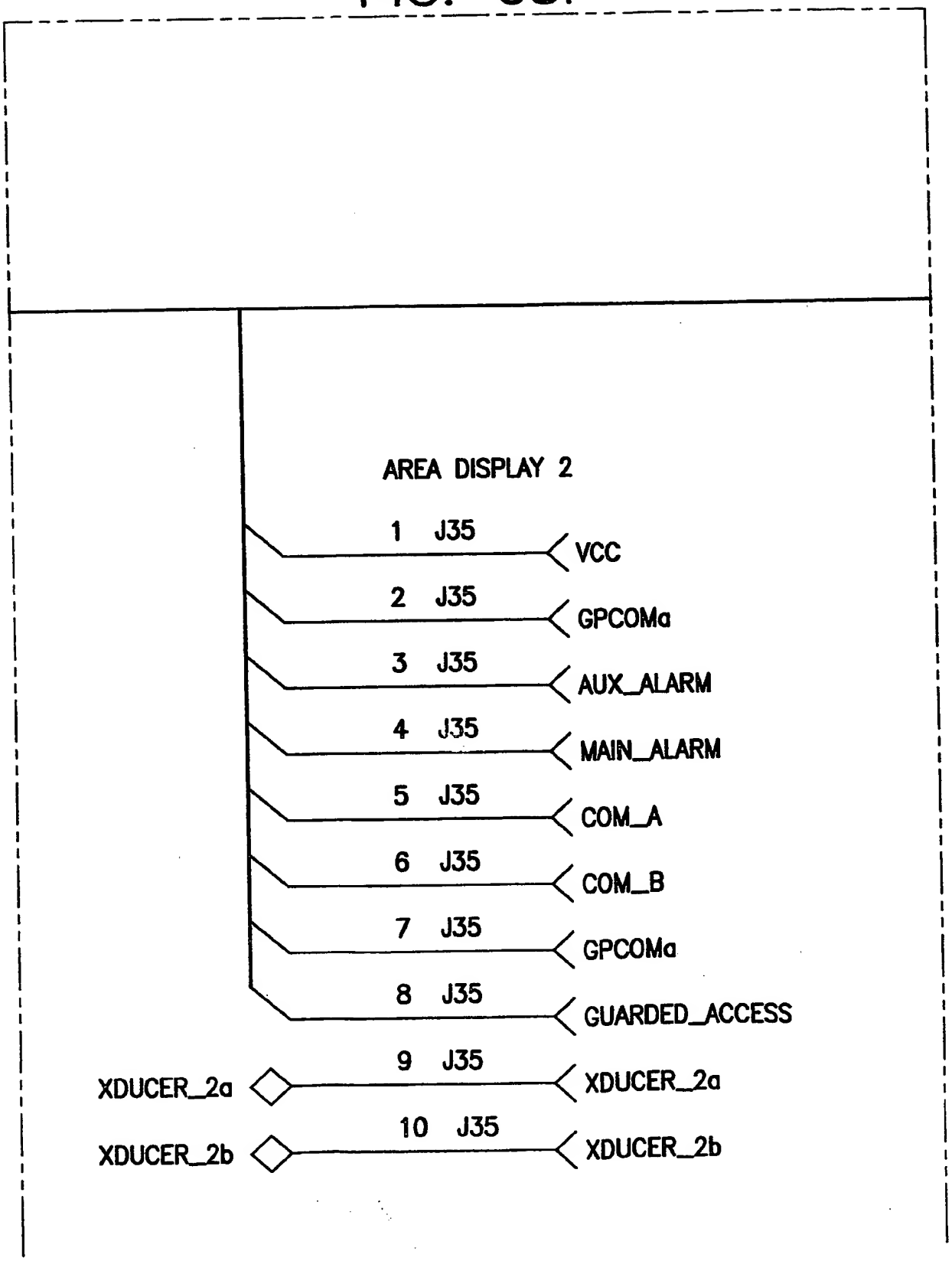

AREA DISPLAY 2
1 J35
VCC
2 J35
GPCOMa
3 J35
AUX_ALARM
4 J35
MAIN_ALARM
5 J35
COM_A
6 J35
COM_B
7 J35
GPCOMa
8 J35
GUARDED_ACCESS
XDUCER_2a
9 J35
XDUCER_2a
XDUCER_2b
10 J35
XDUCER_2b

FIG. 65J

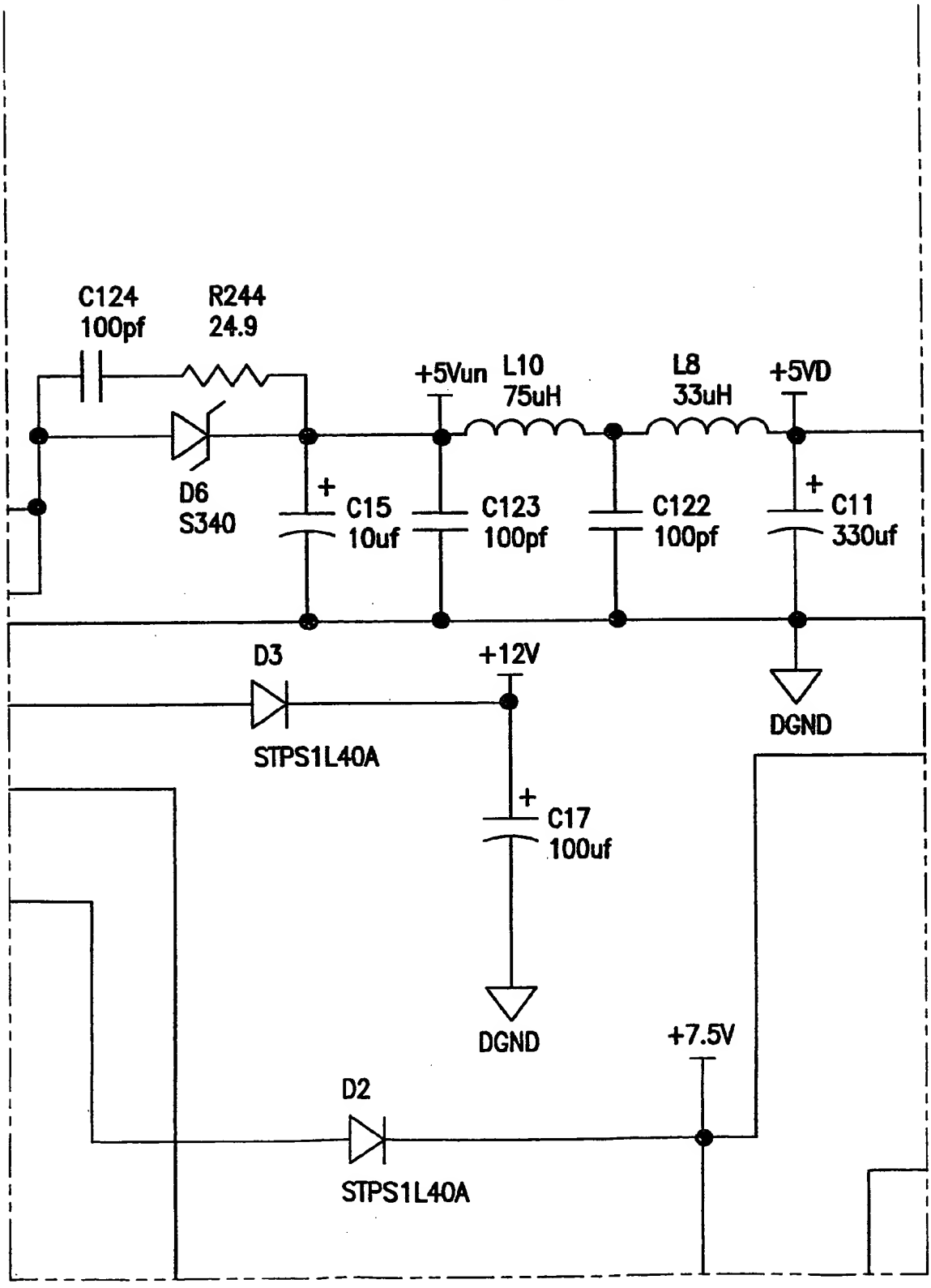

C124
100pf
R244
24.9
+5Vun
L10
75uH
L8
33uH
+5VD
D6
S340
C15
10uf
C123
100pf
C122
100pf
C11
330uf
D3
+12V
DGND
STPS1L40A
C17
100uf
DGND
+7.5V
D2
STPS1L40A

FIG. 65K

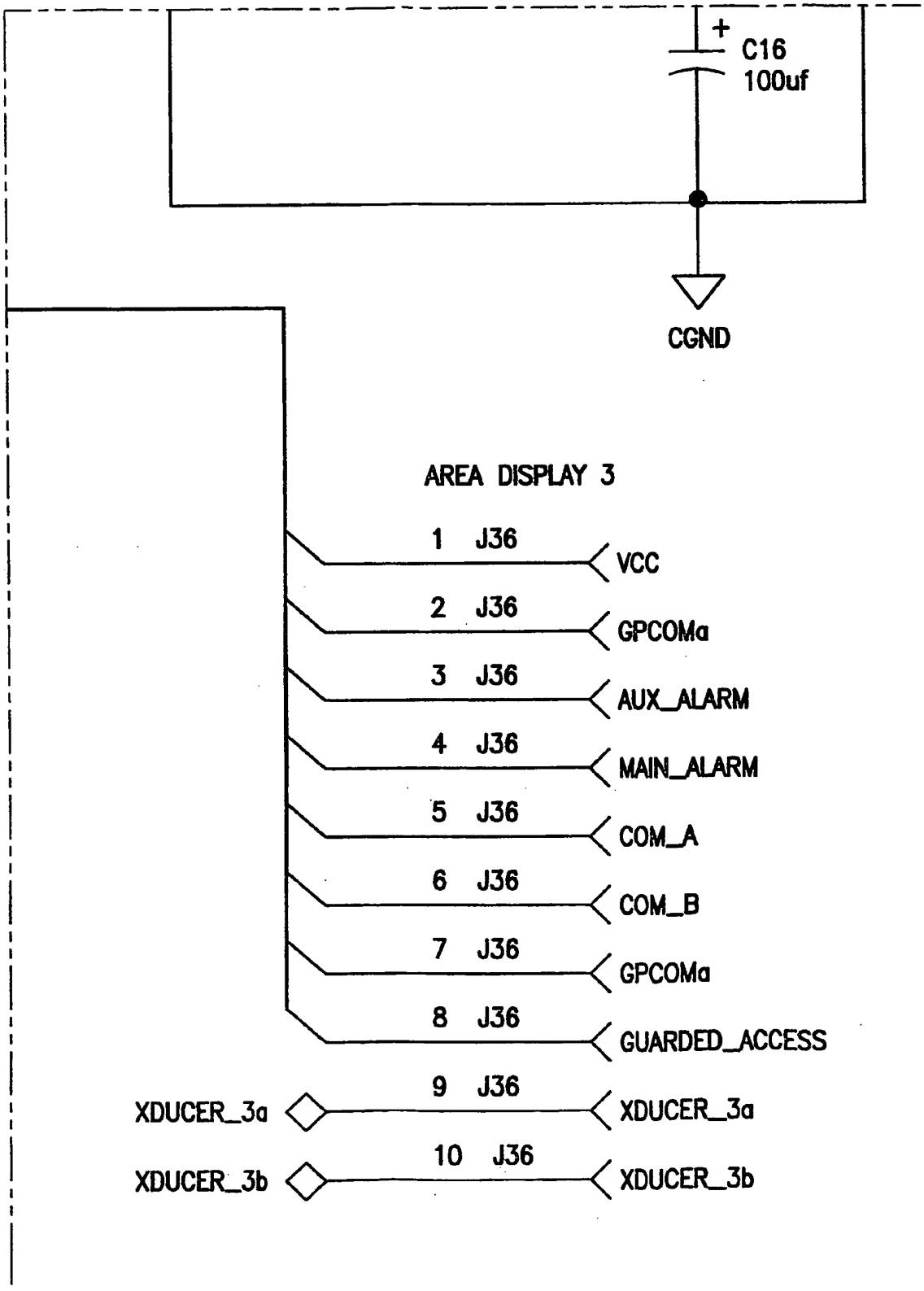

+
C16
100uf
CGND
AREA DISPLAY 3
1 J36
VCC
2 J36
GPCOMa
3 J36
AUX_ALARM
4 J36
MAIN_ALARM
5 J36
COM_A
6 J36
COM_B
7 J36
GPCOMa
8 J36
GUARDED_ACCESS
XDUCER_3a
9 J36
XDUCER_3a
XDUCER_3b
10 J36
XDUCER_3b

FIG. 65L

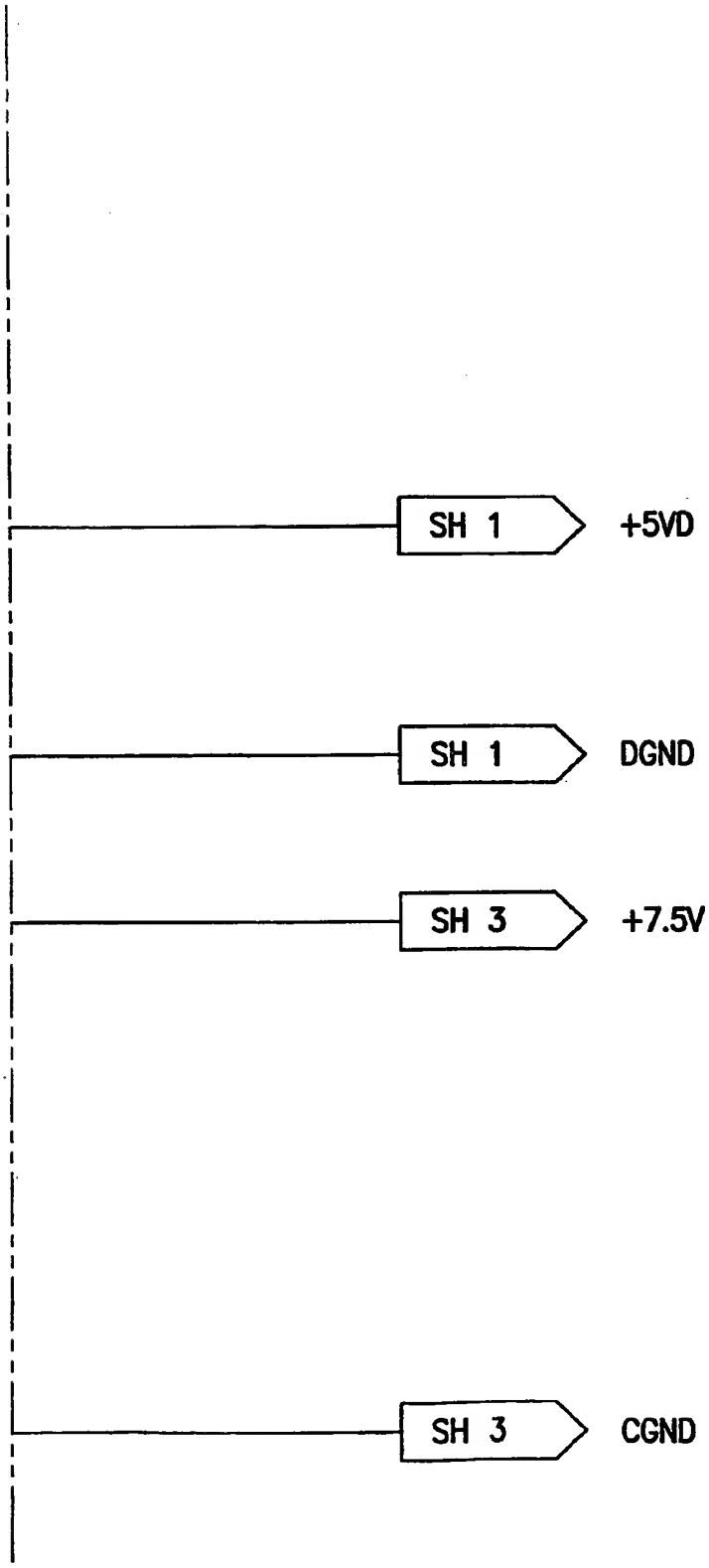


FIG. 66

	FIG. 66E	FIG. 66J	FIG. 66O	FIG. 66S	FIG. 66W
FIG. 66A	FIG. 66F	FIG. 66K	FIG. 66P	FIG. 66T	FIG. 66X
FIG. 66B	FIG. 66G	FIG. 66L	FIG. 66Q	FIG. 66U	
FIG. 66C	FIG. 66H	FIG. 66M	FIG. 66R	FIG. 66V	
FIG. 66D	FIG. 66I	FIG. 66N			

FIG. 66A

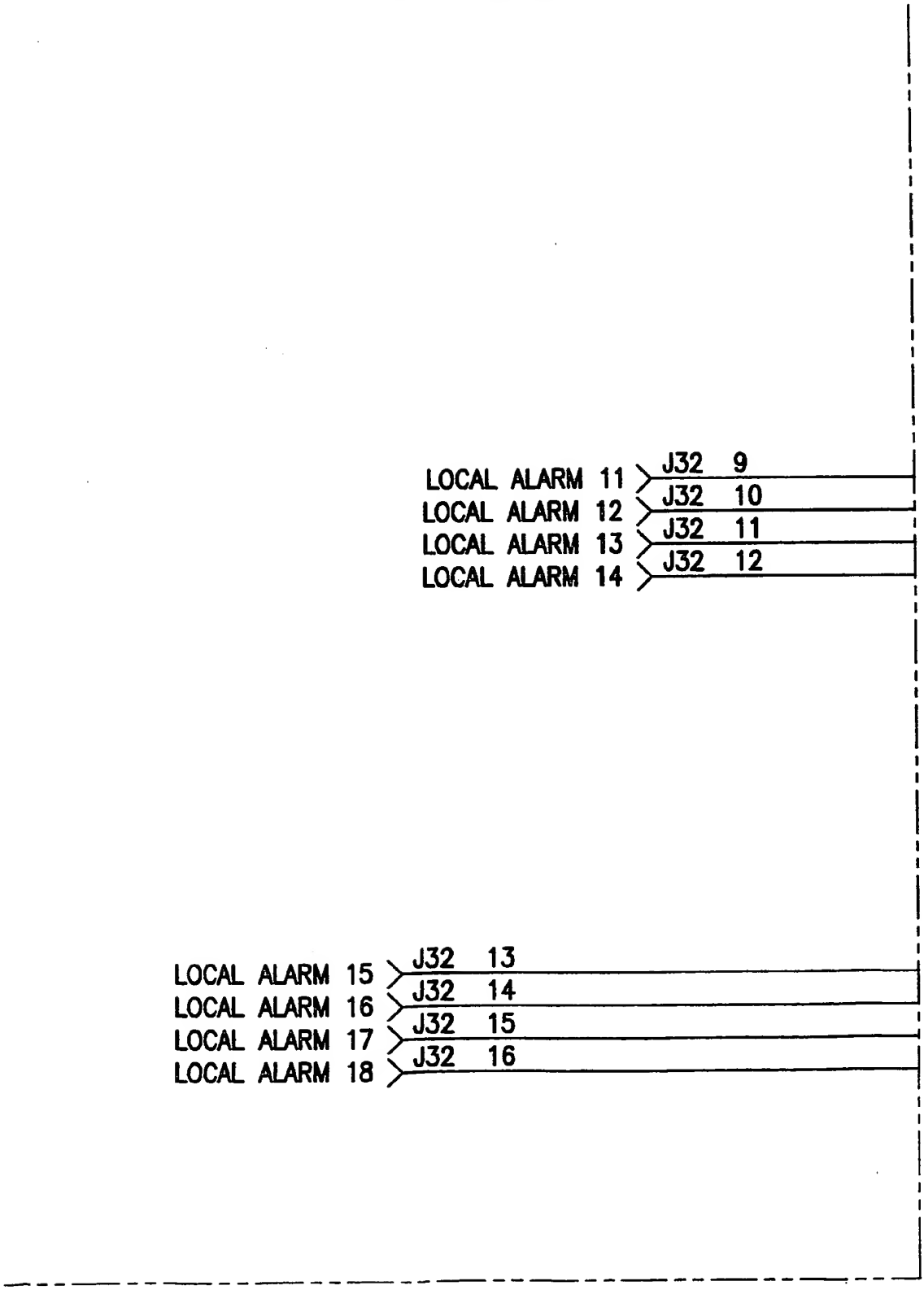

LOCAL ALARM 11
LOCAL ALARM 12
LOCAL ALARM 13
LOCAL ALARM 14
J32 9
J32 10
J32 11
J32 12
LOCAL ALARM 15
LOCAL ALARM 16
LOCAL ALARM 17
LOCAL ALARM 18
J32 13
J32 14
J32 15
J32 16

FIG. 66B

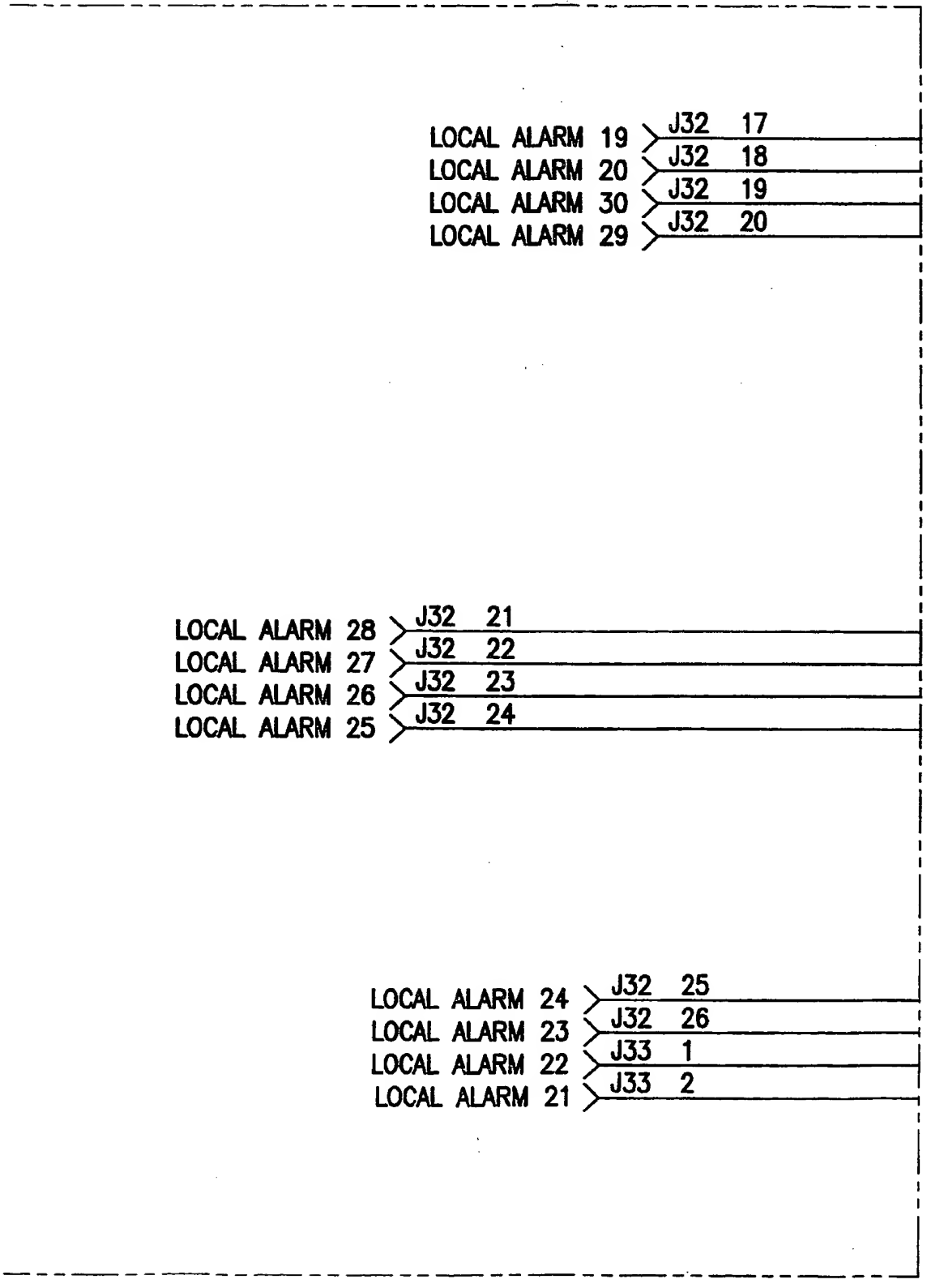

LOCAL ALARM 19
J32 17
LOCAL ALARM 20
J32 18
LOCAL ALARM 30
J32 19
LOCAL ALARM 29
J32 20
LOCAL ALARM 28
J32 21
LOCAL ALARM 27
J32 22
LOCAL ALARM 26
J32 23
LOCAL ALARM 25
J32 24
LOCAL ALARM 24
J32 25
LOCAL ALARM 23
J32 26
LOCAL ALARM 22
J33 1
LOCAL ALARM 21
J33 2

FIG. 66C

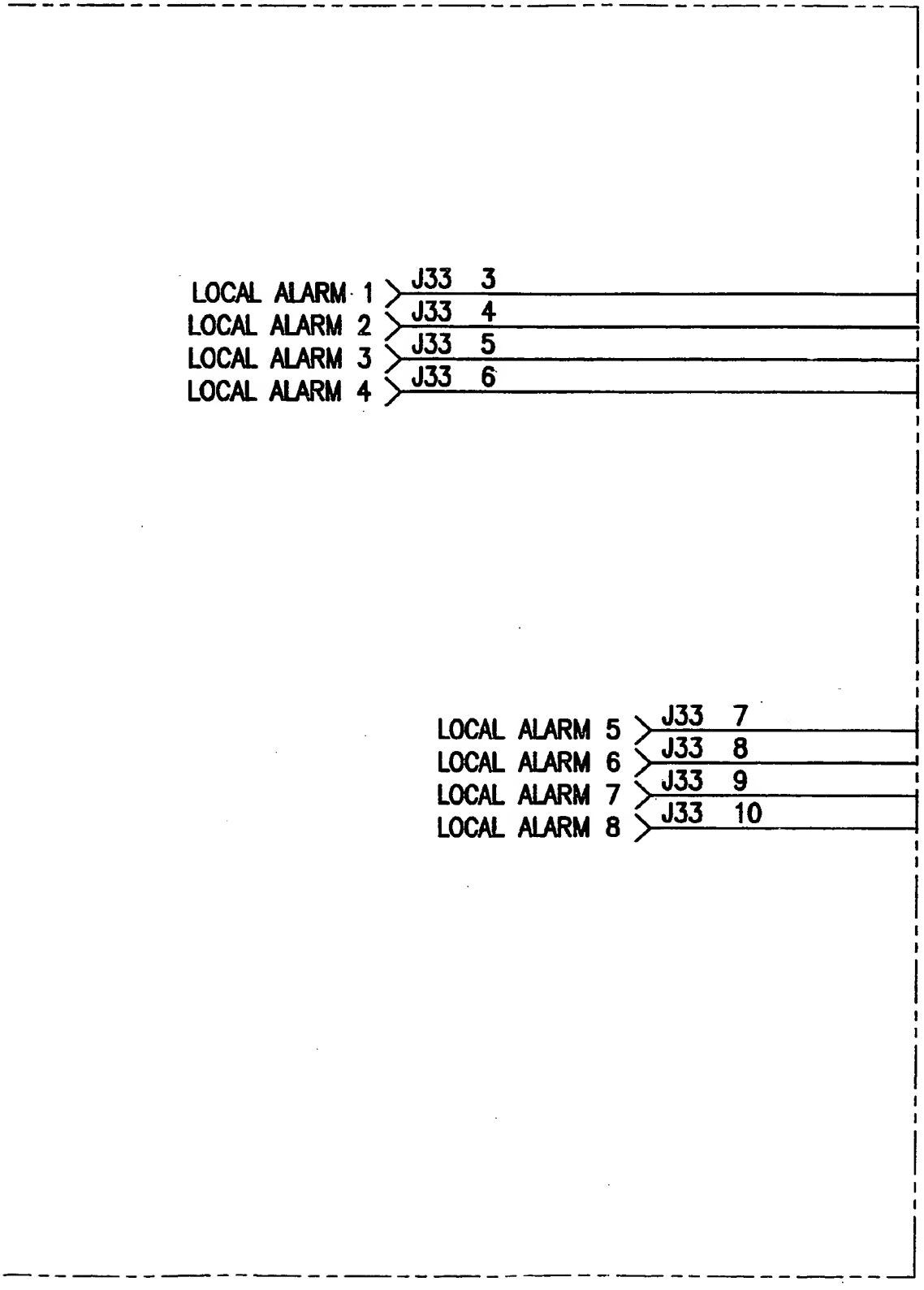

LOCAL ALARM 1
LOCAL ALARM 2
LOCAL ALARM 3
LOCAL ALARM 4
J33 3
J33 4
J33 5
J33 6
LOCAL ALARM 5
LOCAL ALARM 6
LOCAL ALARM 7
LOCAL ALARM 8
J33 7
J33 8
J33 9
J33 10

FIG. 66D

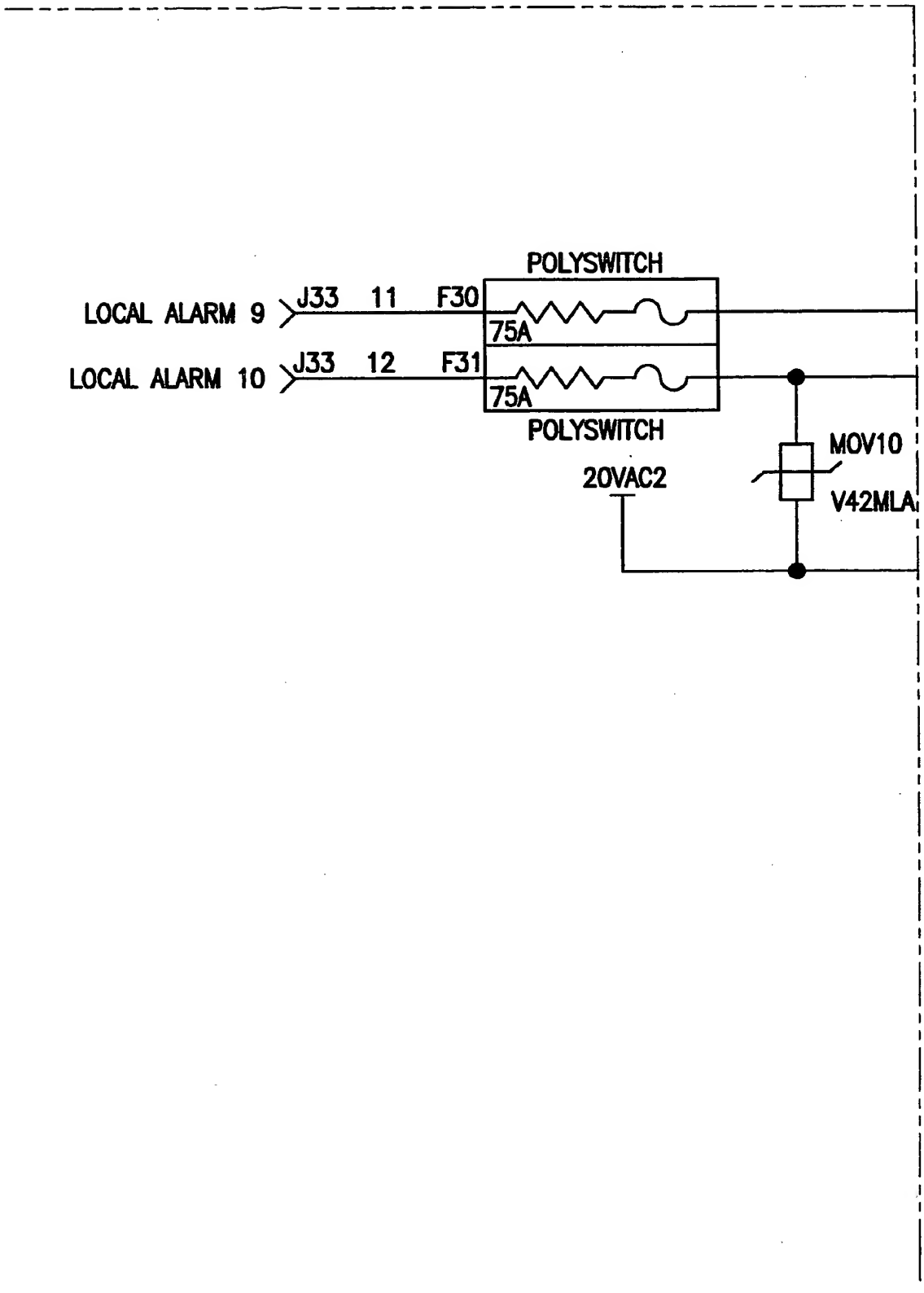

POLYSWITCH
LOCAL ALARM 9
J33 11 F30
75A
LOCAL ALARM 10
J33 12 F31
75A
POLYSWITCH
MOV10
20VAC2
V42MLA

FIG. 66E

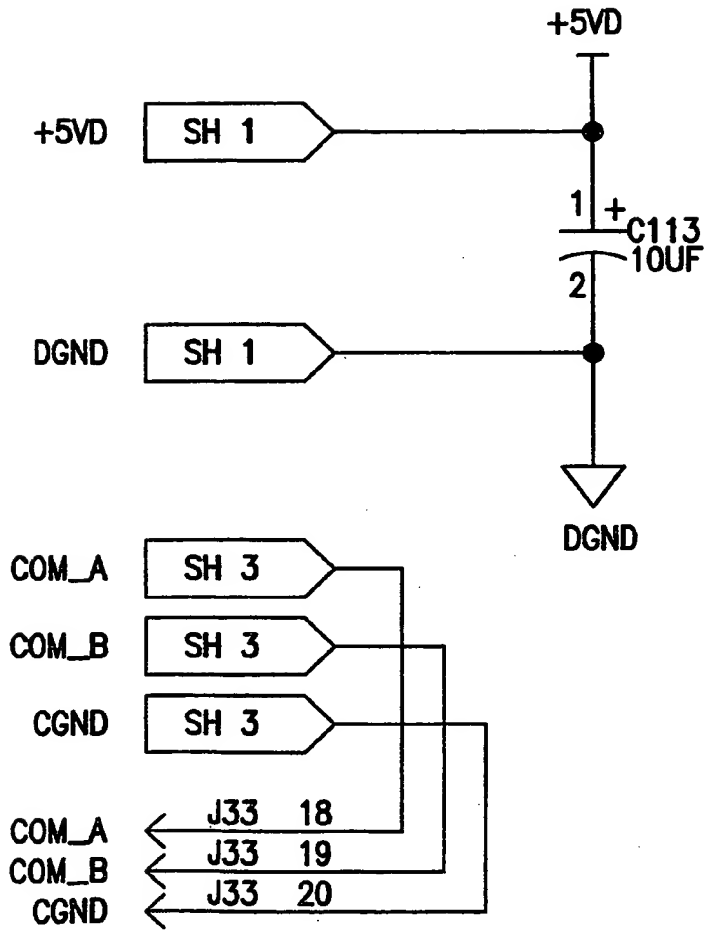

+5VD
+5VD
SH 1
1
+
C113
10UF
2
DGND
SH 1
DGND
COM_A
SH 3
COM_B
SH 3
CGND
SH 3
COM_A
J33 18
COM_B
J33 19
CGND
J33 20

FIG. 66F

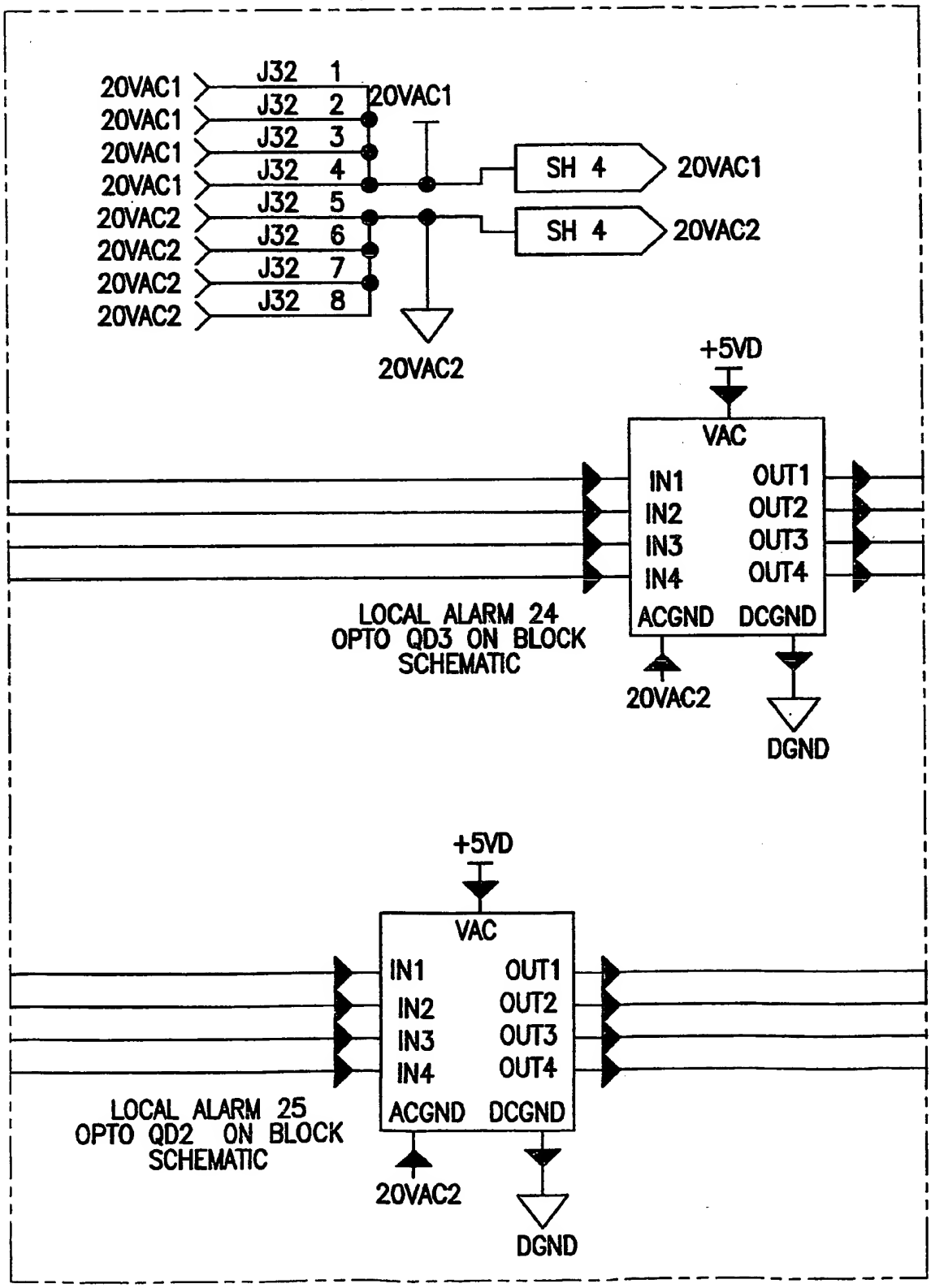

20VAC1
20VAC1
20VAC1
20VAC1
20VAC2
20VAC2
20VAC2
20VAC2
J32 1
J32 2
J32 3
J32 4
J32 5
J32 6
J32 7
J32 8
20VAC1
SH 4
20VAC1
SH 4
20VAC2
20VAC2
+5VD
VAC
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
ACGND
DCGND
LOCAL ALARM 24
OPTO QD3 ON BLOCK
SCHEMATIC
20VAC2
DGND
+5VD
VAC
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
ACGND
DCGND
LOCAL ALARM 25
OPTO QD2 ON BLOCK
SCHEMATIC
20VAC2
DGND

FIG. 66G

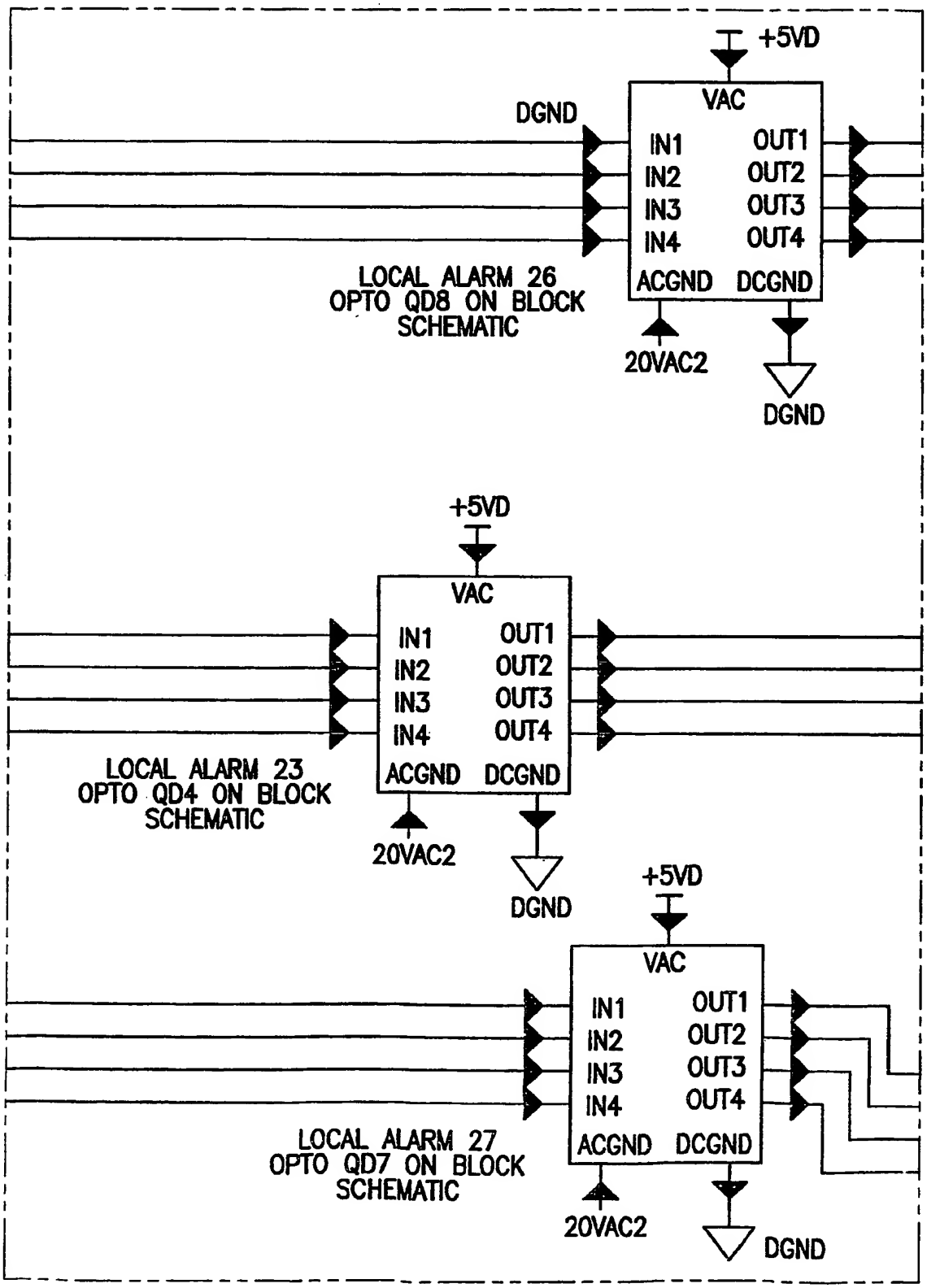

+5VD
VAC
DGND
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
ACGND
DCGND
LOCAL ALARM 26
OPTO QD8 ON BLOCK
SCHEMATIC
20VAC2
DGND
+5VD
VAC
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
ACGND
DCGND
LOCAL ALARM 23
OPTO QD4 ON BLOCK
SCHEMATIC
20VAC2
DGND
+5VD
VAC
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
ACGND
DCGND
LOCAL ALARM 27
OPTO QD7 ON BLOCK
SCHEMATIC
20VAC2
DGND

FIG. 66H

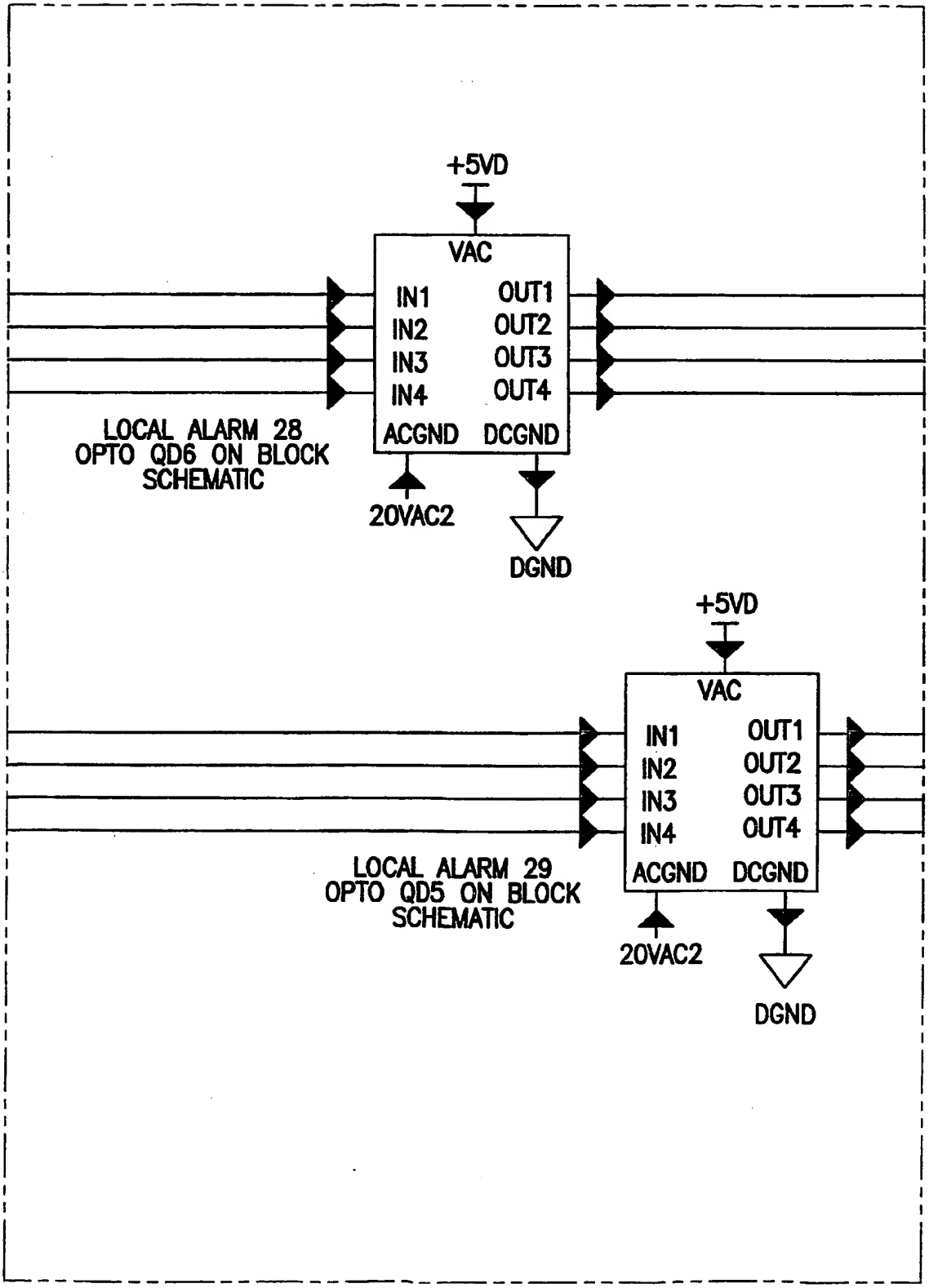

+5VD
VAC
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
ACGND
DCGND
LOCAL ALARM 28
OPTO QD6 ON BLOCK
SCHEMATIC
20VAC2
DGND
+5VD
VAC
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
ACGND
DCGND
LOCAL ALARM 29
OPTO QD5 ON BLOCK
SCHEMATIC
20VAC2
DGND

FIG. 661

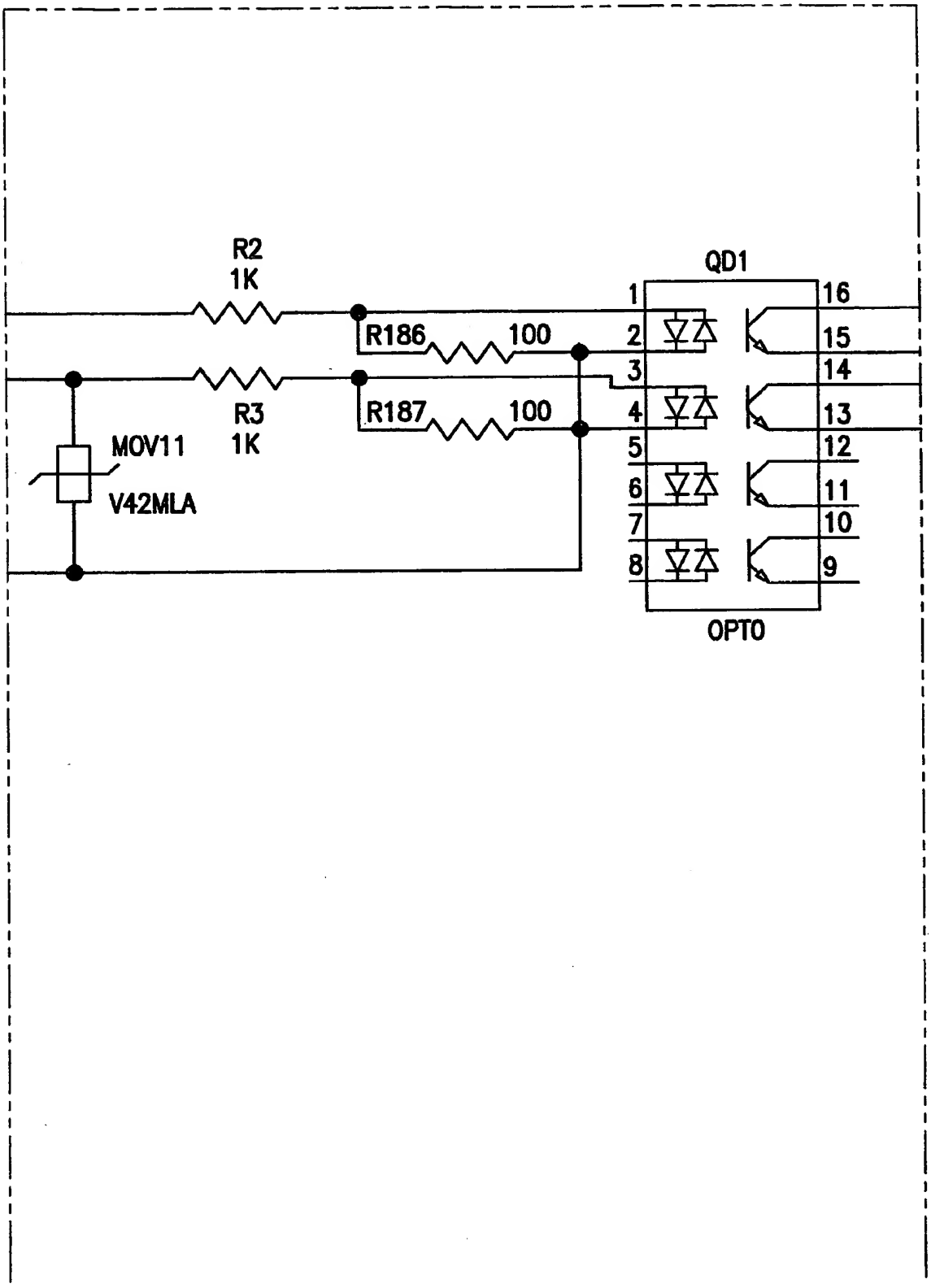

R2
1K
R186
100
R3
1K
R187
100
MOV11
V42MLA
QD1
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
OPTO

FIG. 66J

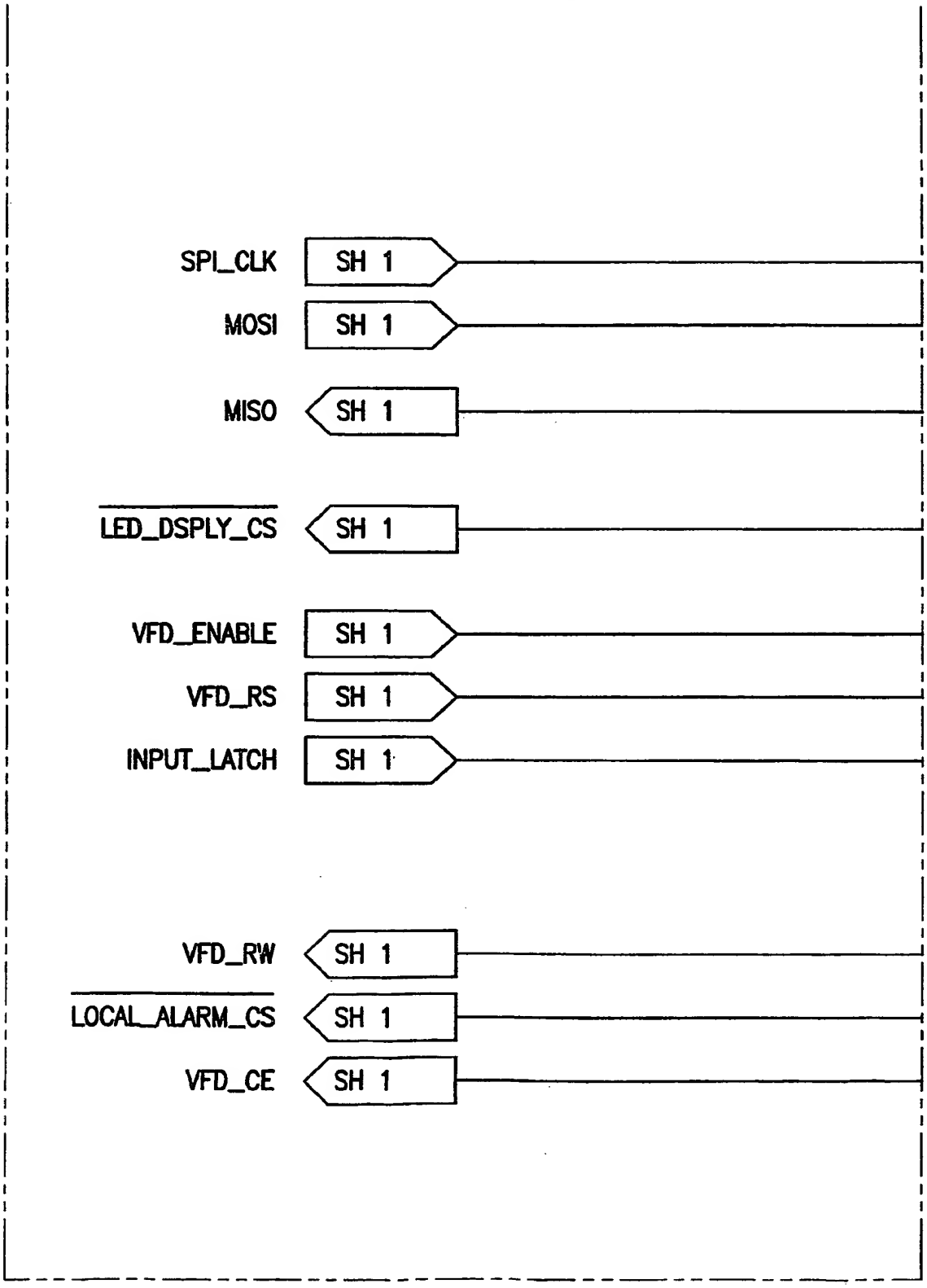

SPI_CLK
SH 1
MOSI
SH 1
MISO
SH 1
LED_DSPLY_CS
SH 1
VFD_ENABLE
SH 1
VFD_RS
SH 1
INPUT_LATCH
SH 1
VFD_RW
SH 1
LOCAL_ALARM_CS
SH 1
VFD_CE
SH 1

FIG. 66K

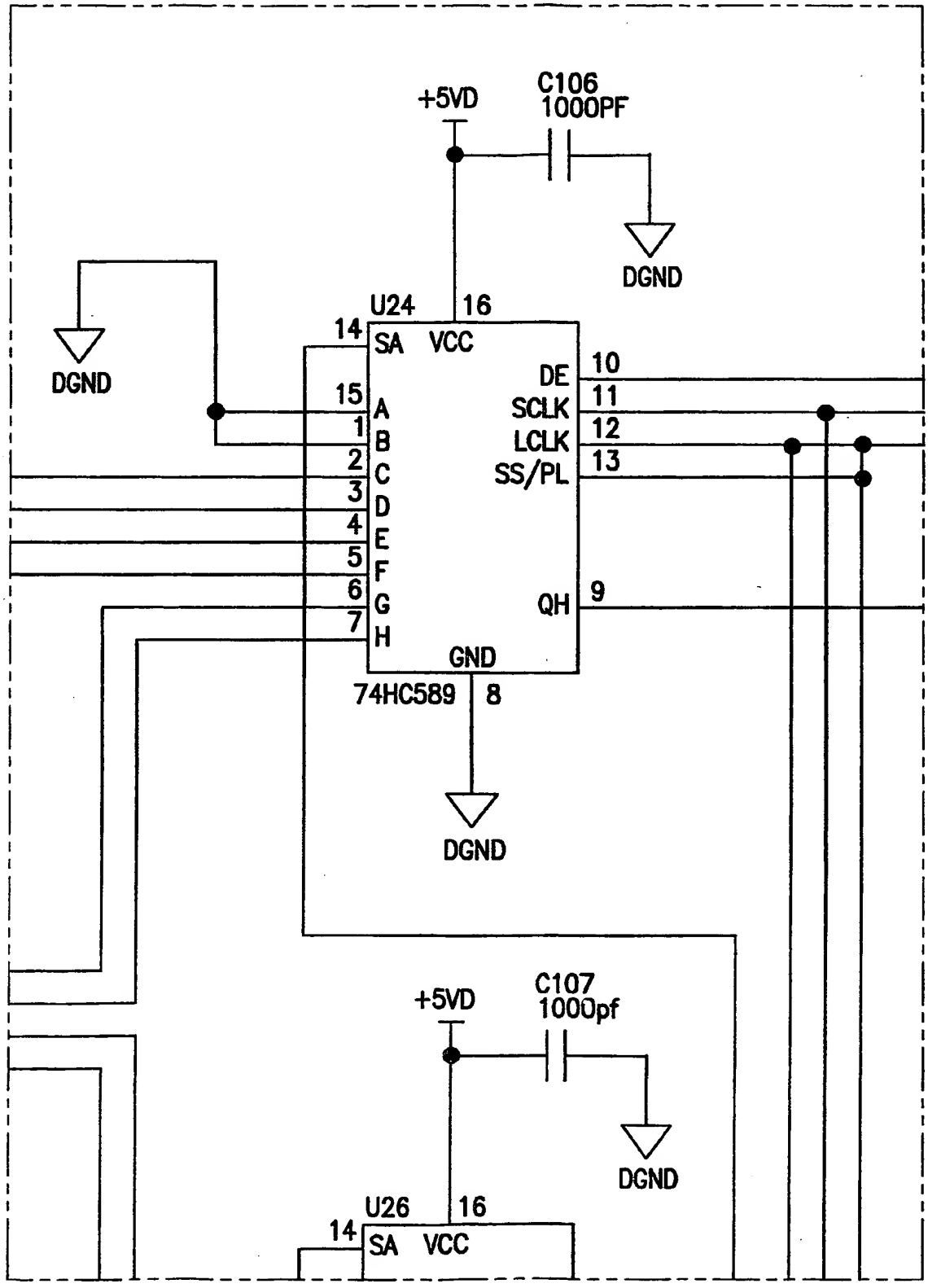

+5VD
C106
1000PF
DGND
DGND
U24
16
14
SA
VCC
15
A
1
B
2
C
3
D
4
E
5
F
6
G
7
H
DE
10
SCLK
11
LCLK
12
SS/PL
13
QH
9
GND
74HC589
8
DGND
+5VD
C107
1000pf
DGND
U26
16
14
SA
VCC

FIG. 66L

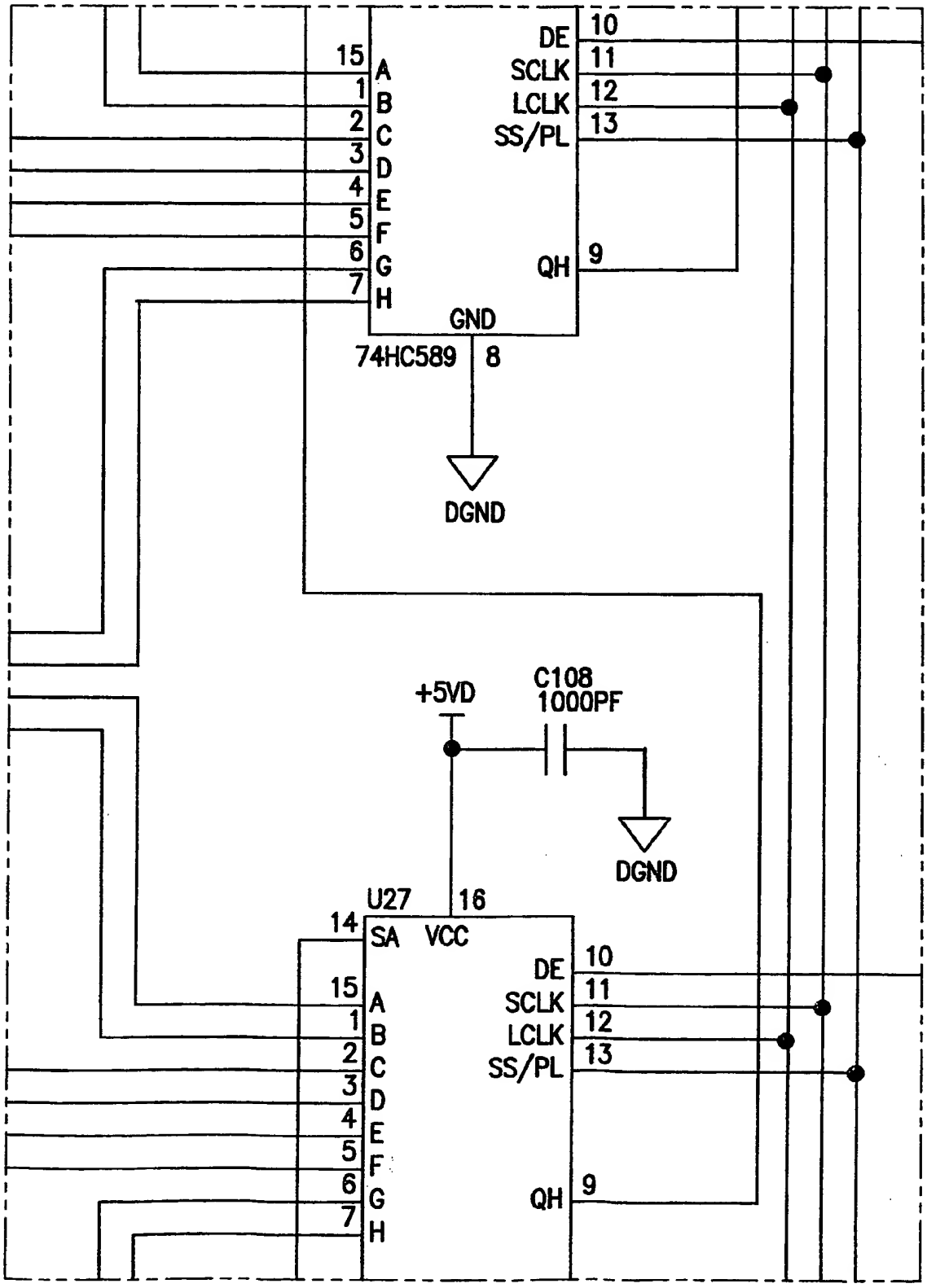

15
A
1
B
2
C
3
D
4
E
5
F
6
G
7
H
DE
10
SCLK
11
LCLK
12
SS/PL
13
QH
9
GND
74HC589
8
DGND
+5VD
C108
1000PF
DGND
U27
16
14
SA
VCC
15
A
1
B
2
C
3
D
4
E
5
F
6
G
7
H
DE
10
SCLK
11
LCLK
12
SS/PL
13
QH
9

FIG. 66M

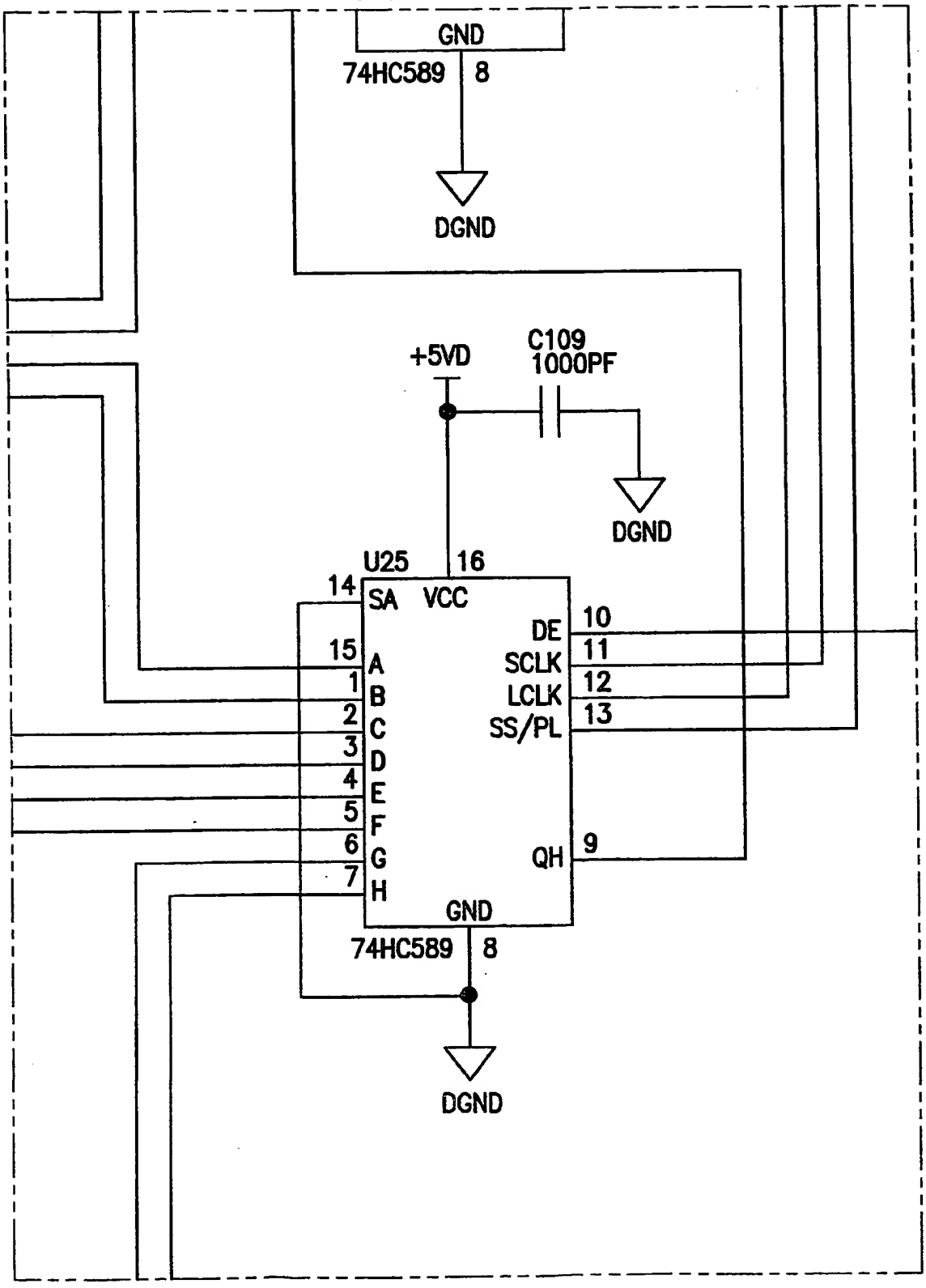

GND
74HC589
8
DGND
+5VD
C109
1000PF
DGND
U25
16
14
SA
VCC
DE
10
15
A
SCLK
11
1
B
LCLK
12
2
C
SS/PL
13
3
D
4
E
5
F
6
G
QH
9
7
H
GND
74HC589
8
DGND

FIG. 66N

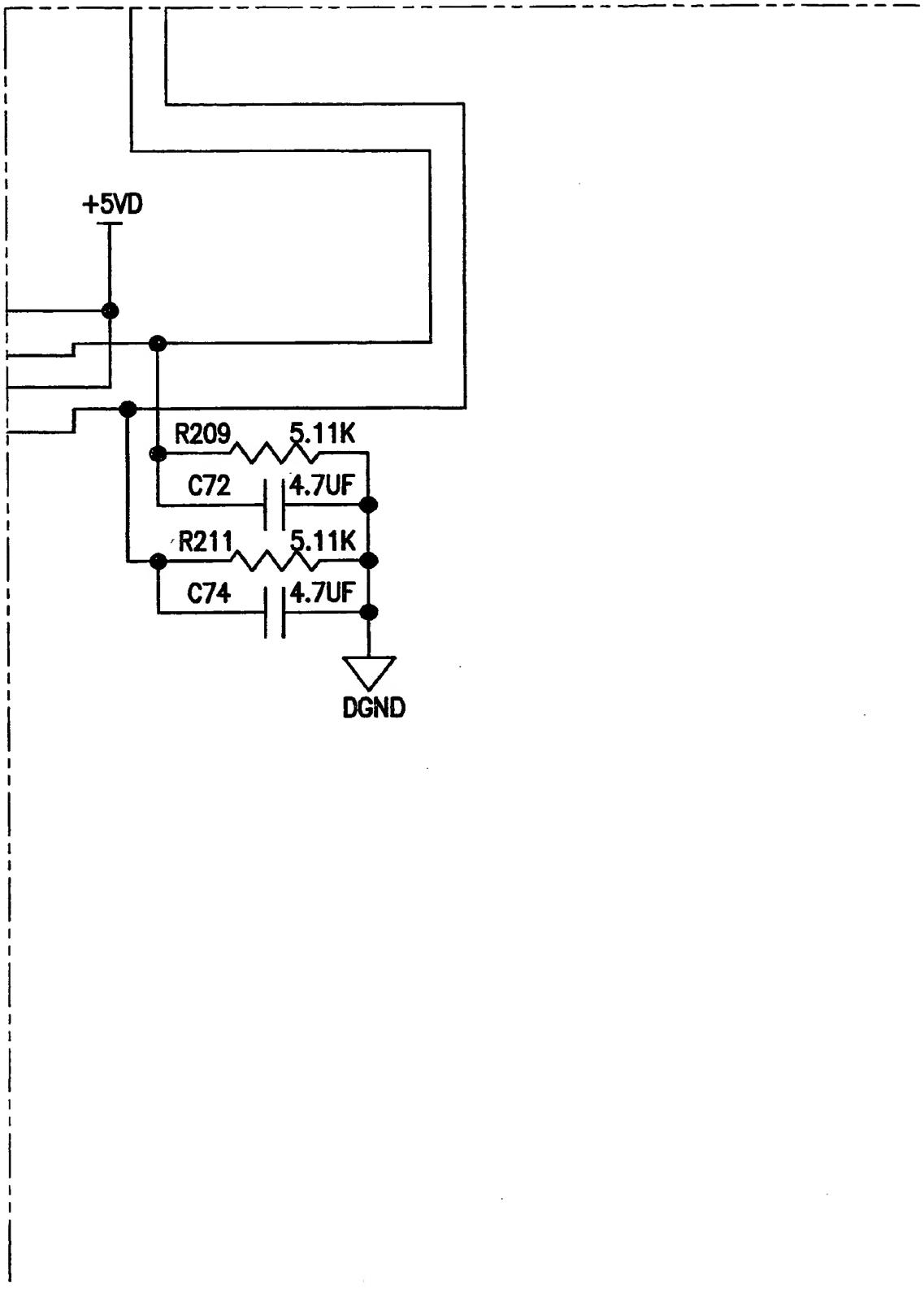


FIG. 660

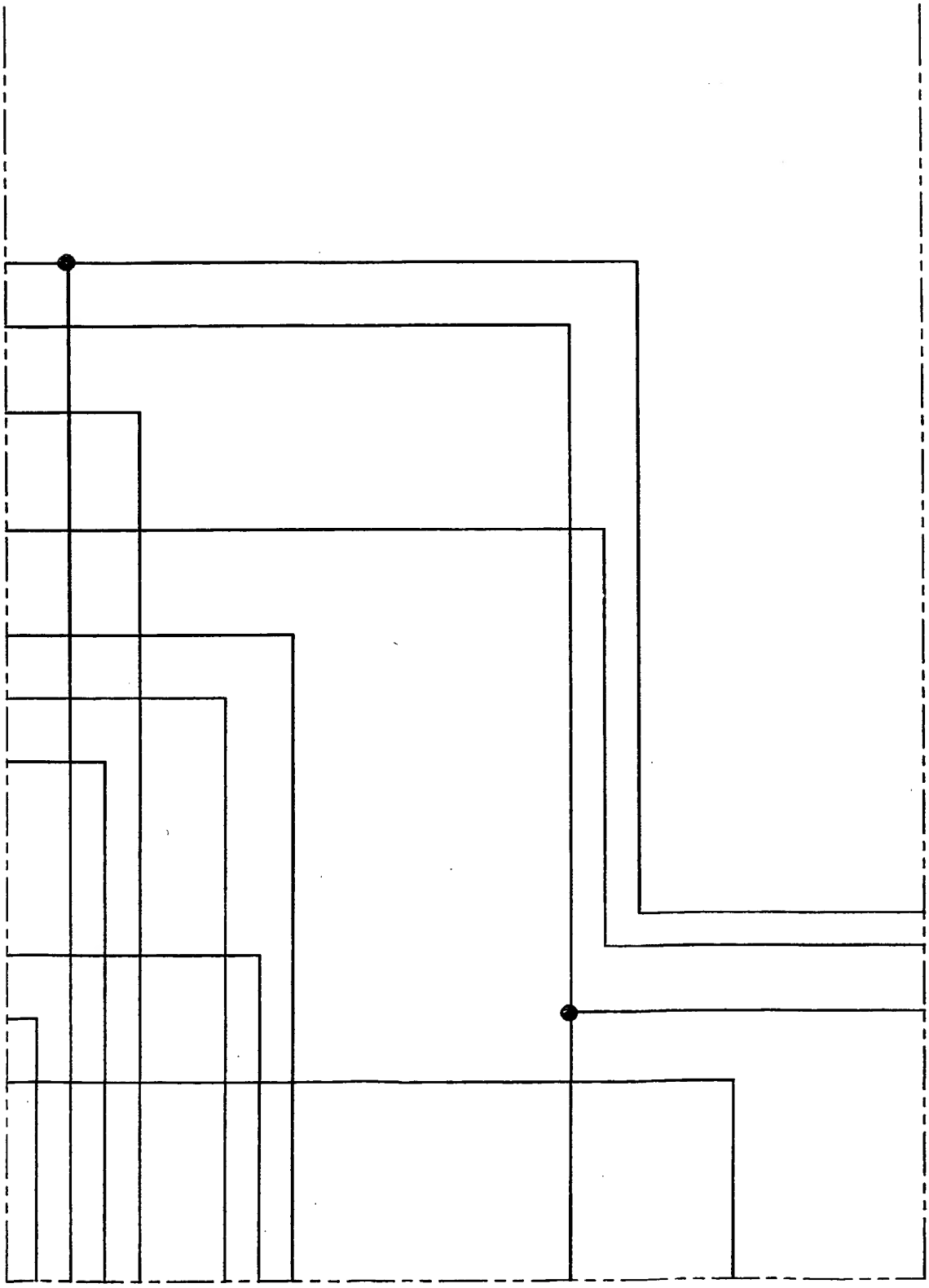


FIG. 66P

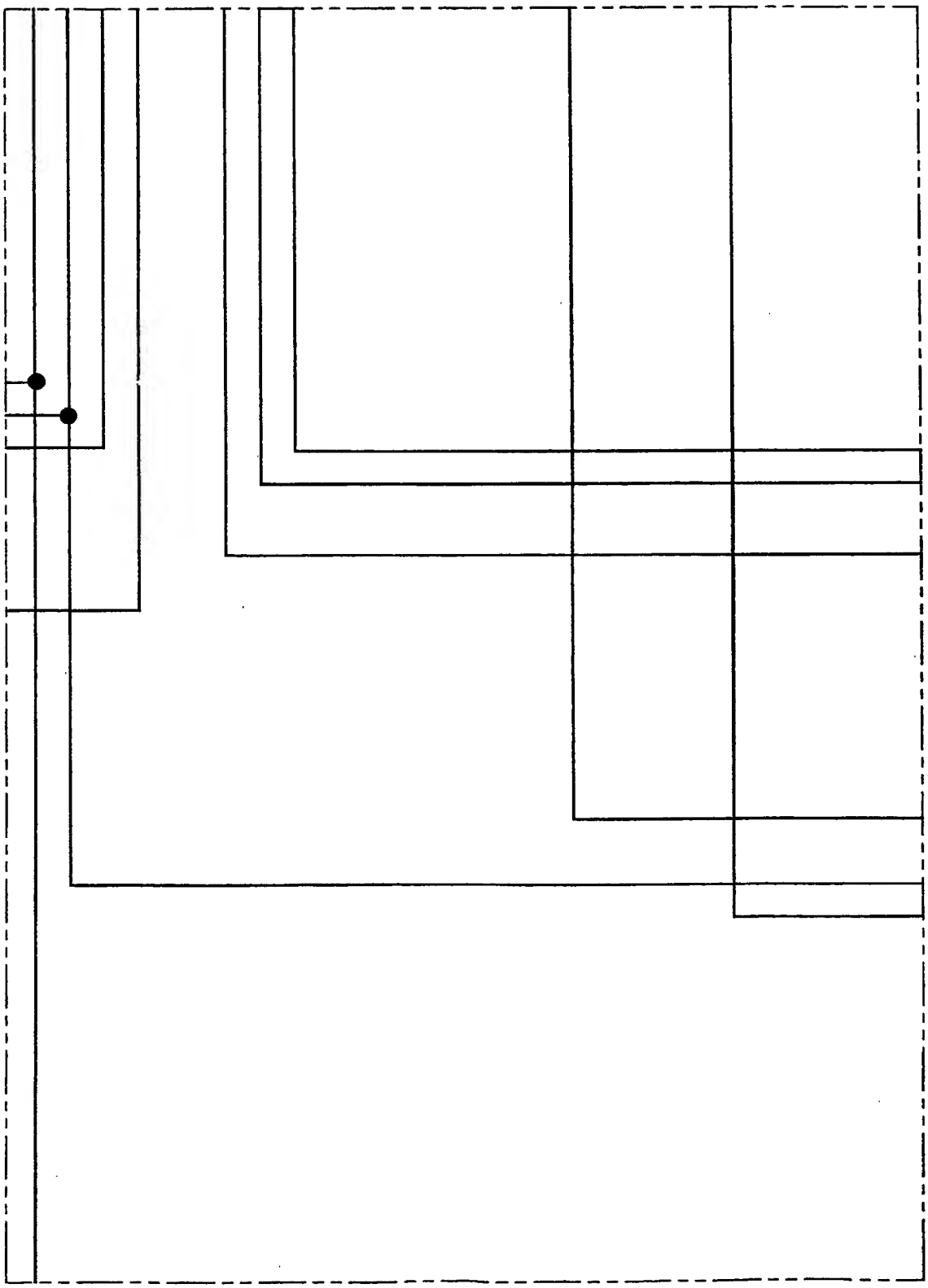


FIG. 66Q

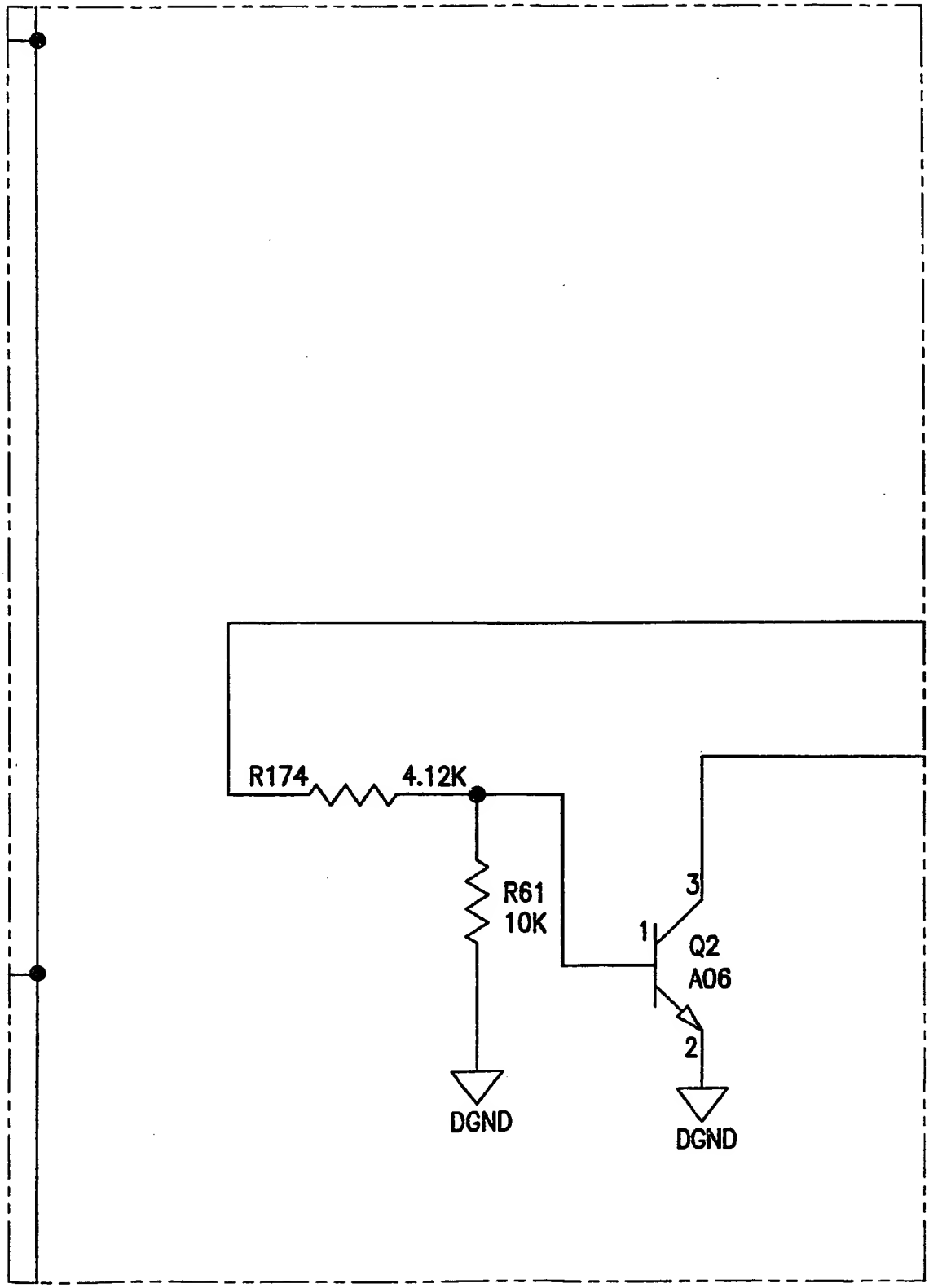


FIG. 66R

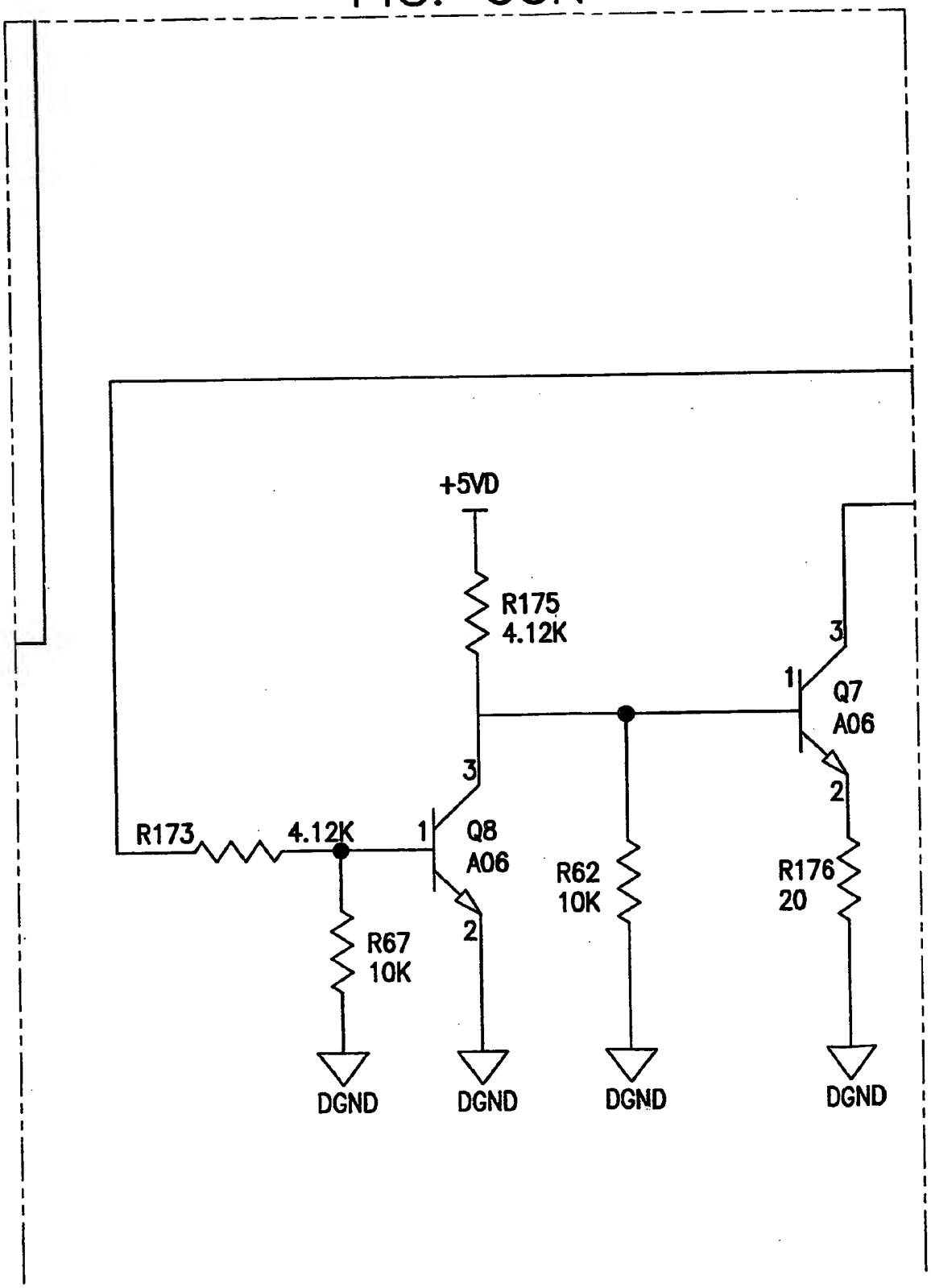

+5VD
R175
4.12K
3
1
Q7
A06
2
3
R173
4.12K
1
Q8
A06
2
R67
10K
R62
10K
R176
20
DGND
DGND
DGND
DGND

FIG. 66S

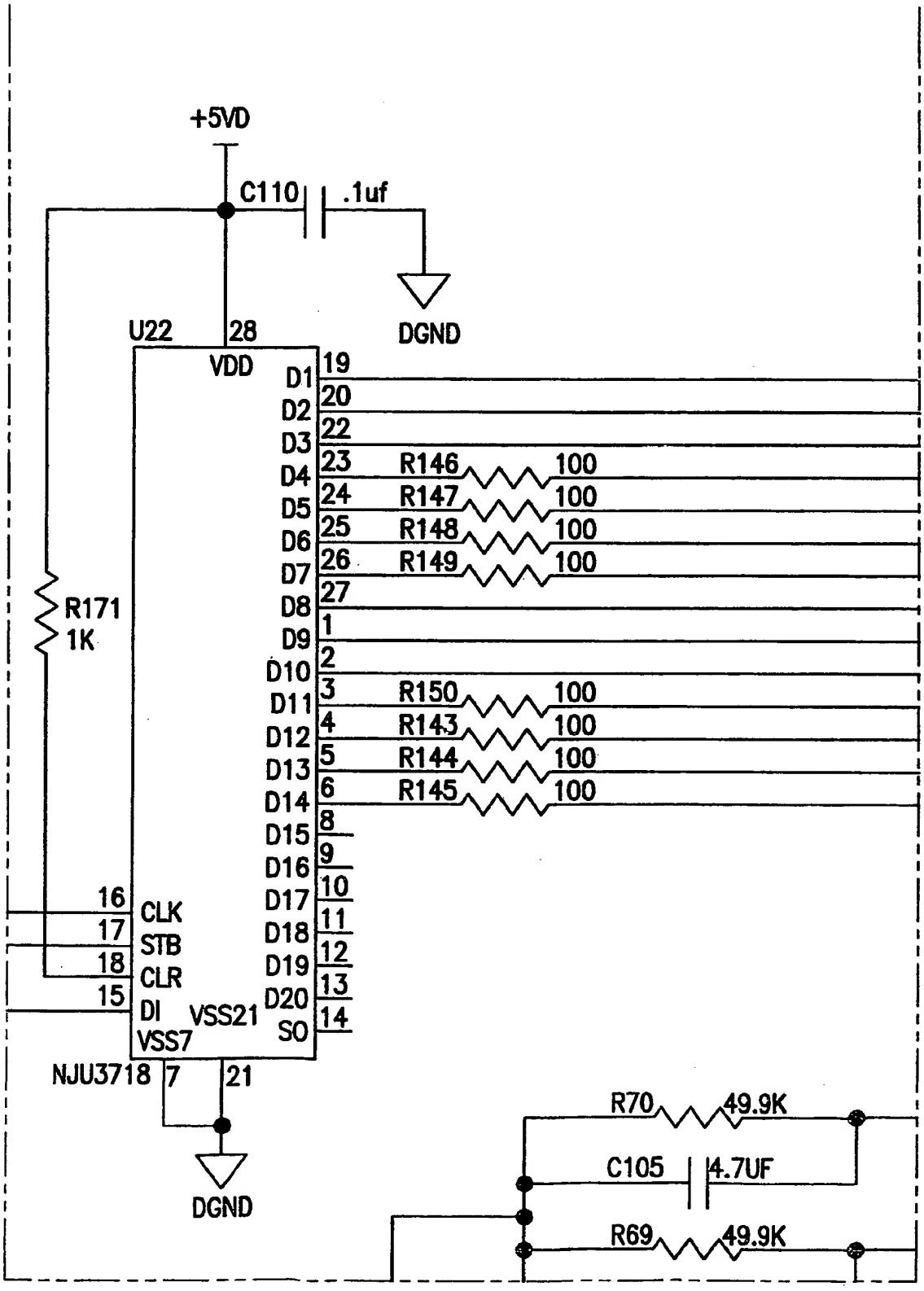

+5VD
C110
.1uf
DGND
U22
28
VDD
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
19
20
22
23
24
25
26
27
1
2
3
4
5
6
8
9
10
11
12
13
14
R146 100
R147 100
R148 100
R149 100
R150 100
R143 100
R144 100
R145 100
R171
1K
16
17
18
15
CLK
STB
CLR
DI
VSS21
VSS7
SO
NJU3718
7
21
DGND
R70
49.9K
C105
4.7UF
R69
49.9K

FIG. 66T

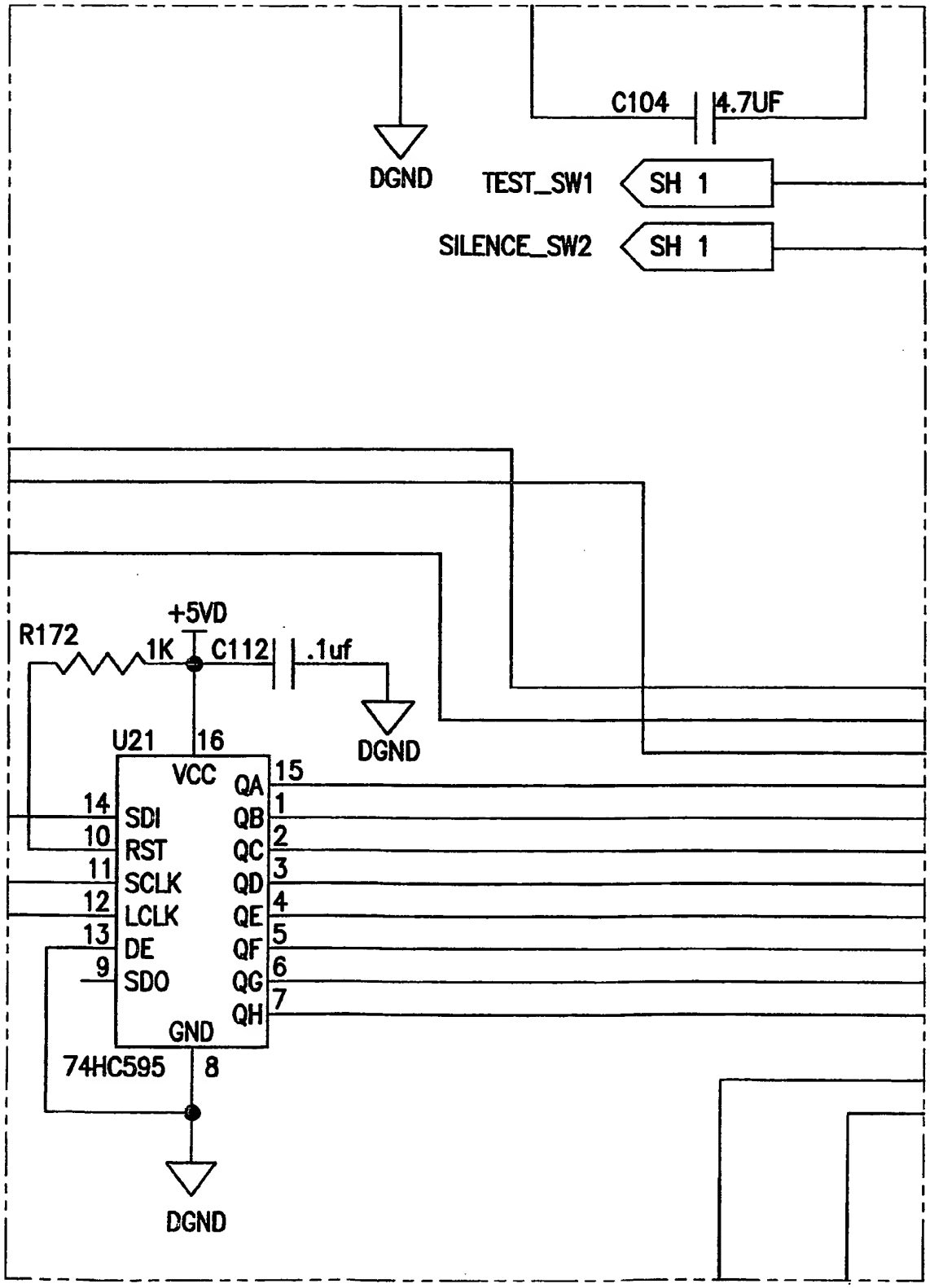

C104
4.7UF
DGND
TEST_SW1
SH 1
SILENCE_SW2
SH 1
+5VD
R172
1K
C112
.1uf
DGND
U21
16
VCC
QA
15
14
SDI
QB
1
10
RST
QC
2
11
SCLK
QD
3
12
LCLK
QE
4
13
DE
QF
5
9
SDO
QG
6
QH
7
GND
74HC595
8
DGND

FIG. 66U

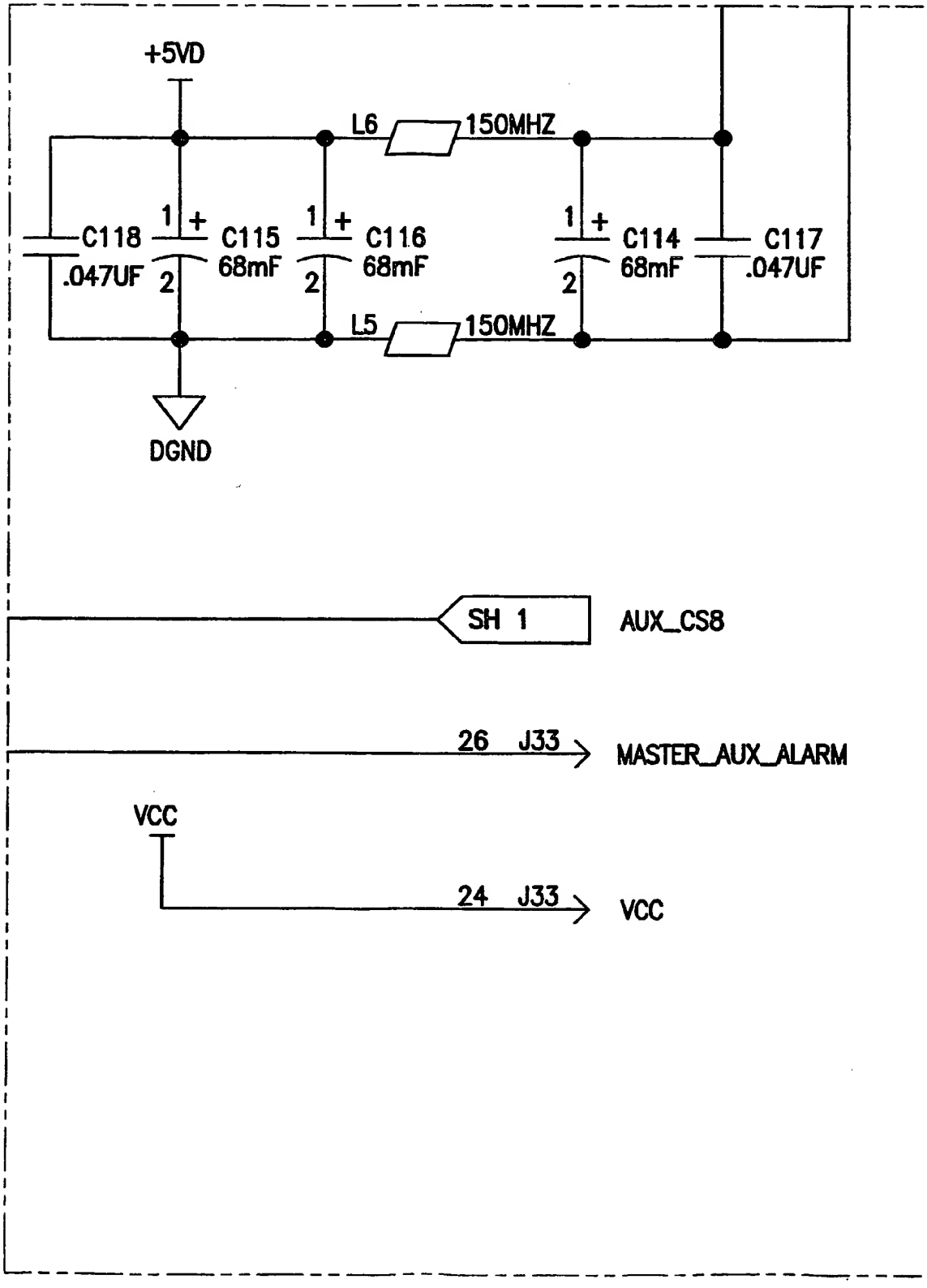

+5VD
L6
150MHZ
C118
.047UF
C115
68mF
C116
68mF
C114
68mF
C117
.047UF
L5
150MHZ
DGND
SH 1
AUX_CS8
26 J33
MASTER_AUX_ALARM
VCC
24 J33
VCC

FIG. 66V

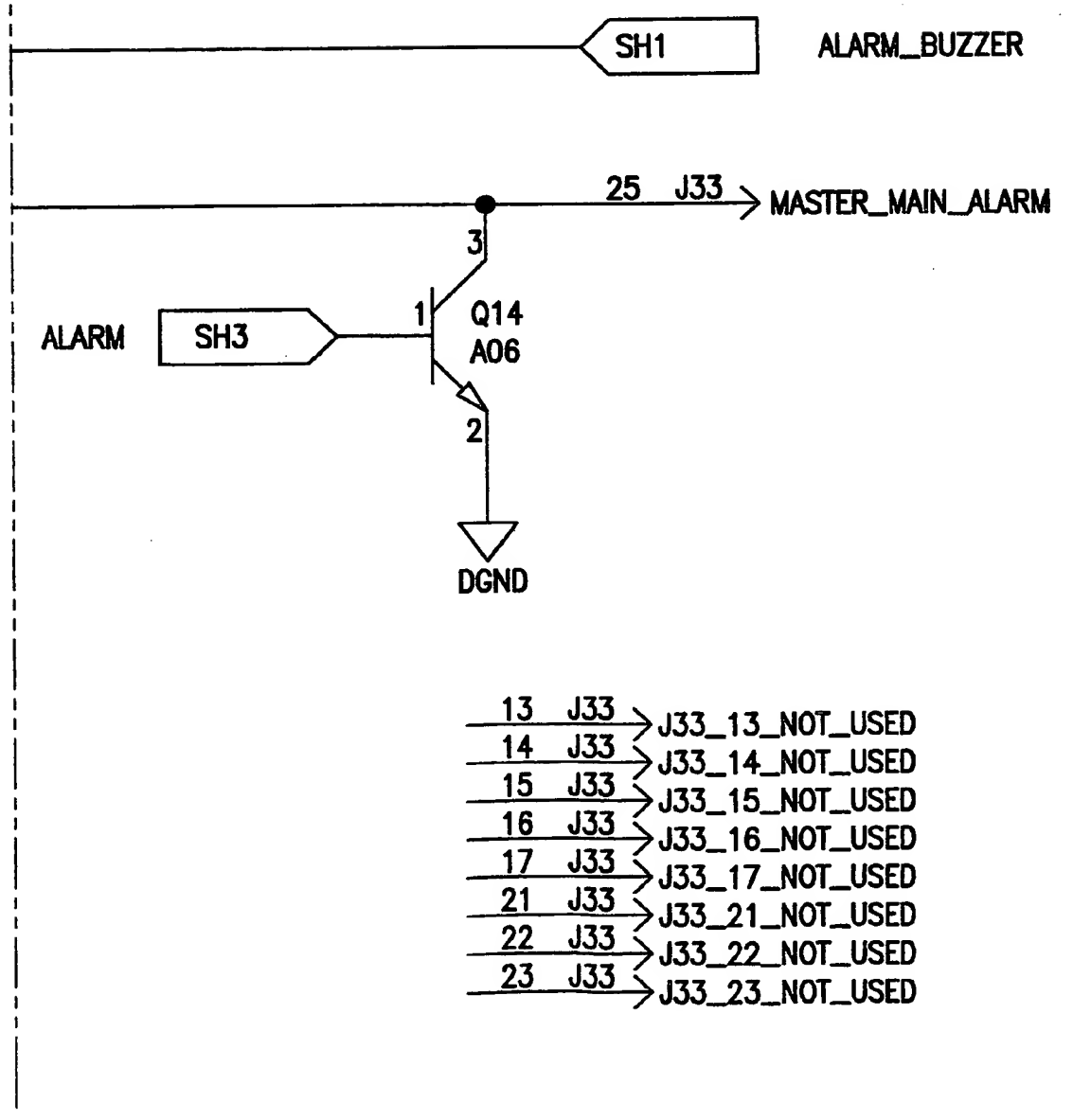

SH1
ALARM_BUZZER
25 J33
MASTER_MAIN_ALARM
3
1
Q14
A06
ALARM
SH3
2
DGND
13 J33
J33_13_NOT_USED
14 J33
J33_14_NOT_USED
15 J33
J33_15_NOT_USED
16 J33
J33_16_NOT_USED
17 J33
J33_17_NOT_USED
21 J33
J33_21_NOT_USED
22 J33
J33_22_NOT_USED
23 J33
J33_23_NOT_USED

FIG. 66W

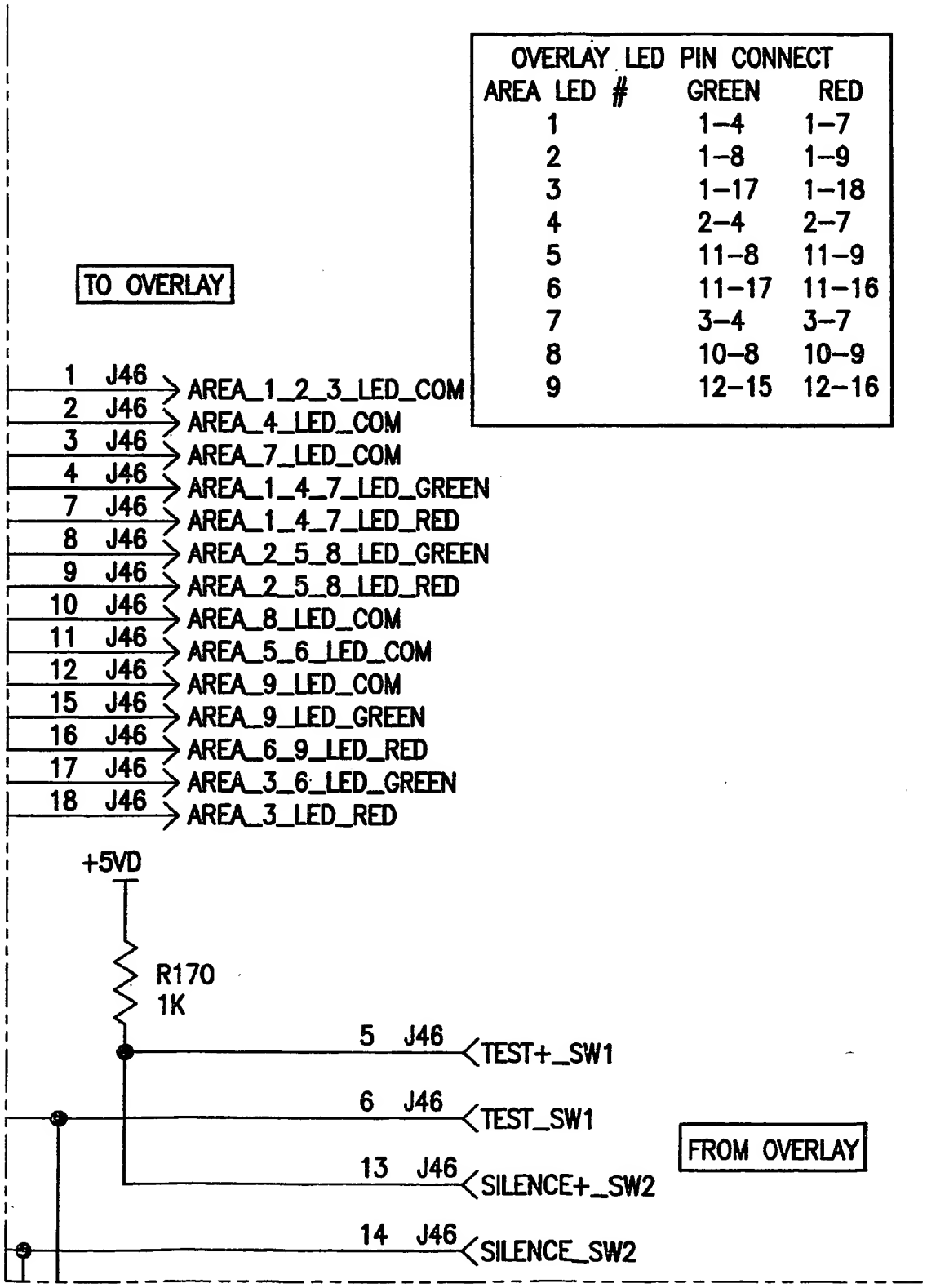

OVERLAY LED PIN CONNECT
AREA LED # GREEN RED
1 1-4 1-7
2 1-8 1-9
3 1-17 1-18
4 2-4 2-7
5 11-8 11-9
6 11-17 11-16
7 3-4 3-7
8 10-8 10-9
9 12-15 12-16
TO OVERLAY
1 J46 AREA_1_2_3_LED_COM
2 J46 AREA_4_LED_COM
3 J46 AREA_7_LED_COM
4 J46 AREA_1_4_7_LED_GREEN
7 J46 AREA_1_4_7_LED_RED
8 J46 AREA_2_5_8_LED_GREEN
9 J46 AREA_2_5_8_LED_RED
10 J46 AREA_8_LED_COM
11 J46 AREA_5_6_LED_COM
12 J46 AREA_9_LED_COM
15 J46 AREA_9_LED_GREEN
16 J46 AREA_6_9_LED_RED
17 J46 AREA_3_6_LED_GREEN
18 J46 AREA_3_LED_RED
+5VD
R170
1K
5 J46 TEST+_SW1
6 J46 TEST_SW1
13 J46 SILENCE+_SW2
14 J46 SILENCE_SW2
FROM OVERLAY

FIG. 66X

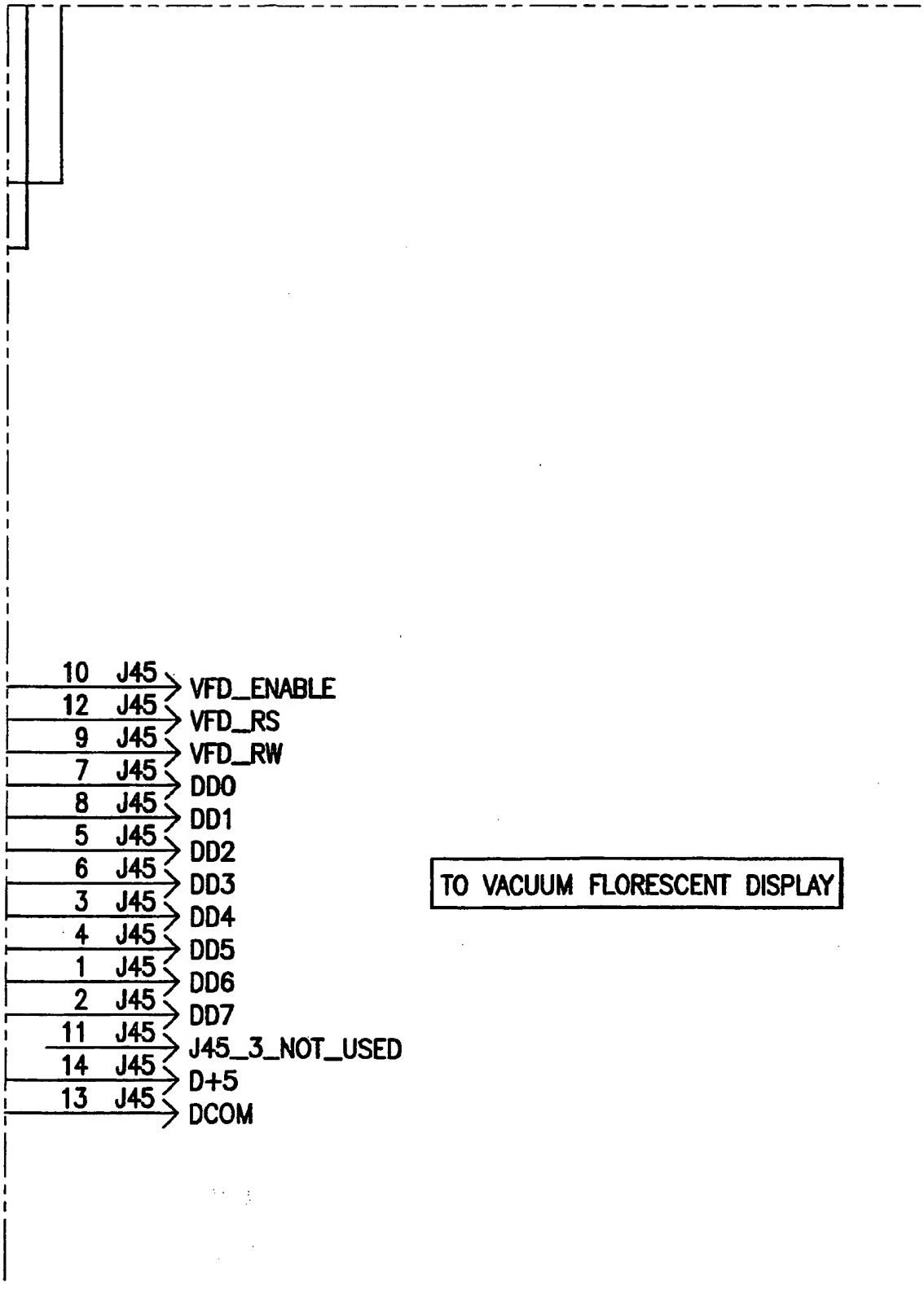

10 J45 VFD_ENABLE
12 J45 VFD_RS
9 J45 VFD_RW
7 J45 DD0
8 J45 DD1
5 J45 DD2
6 J45 DD3
3 J45 DD4
4 J45 DD5
1 J45 DD6
2 J45 DD7
11 J45 J45_3_NOT_USED
14 J45 D+5
13 J45 DCOM
TO VACUUM FLORESCENT DISPLAY

FIG. 67

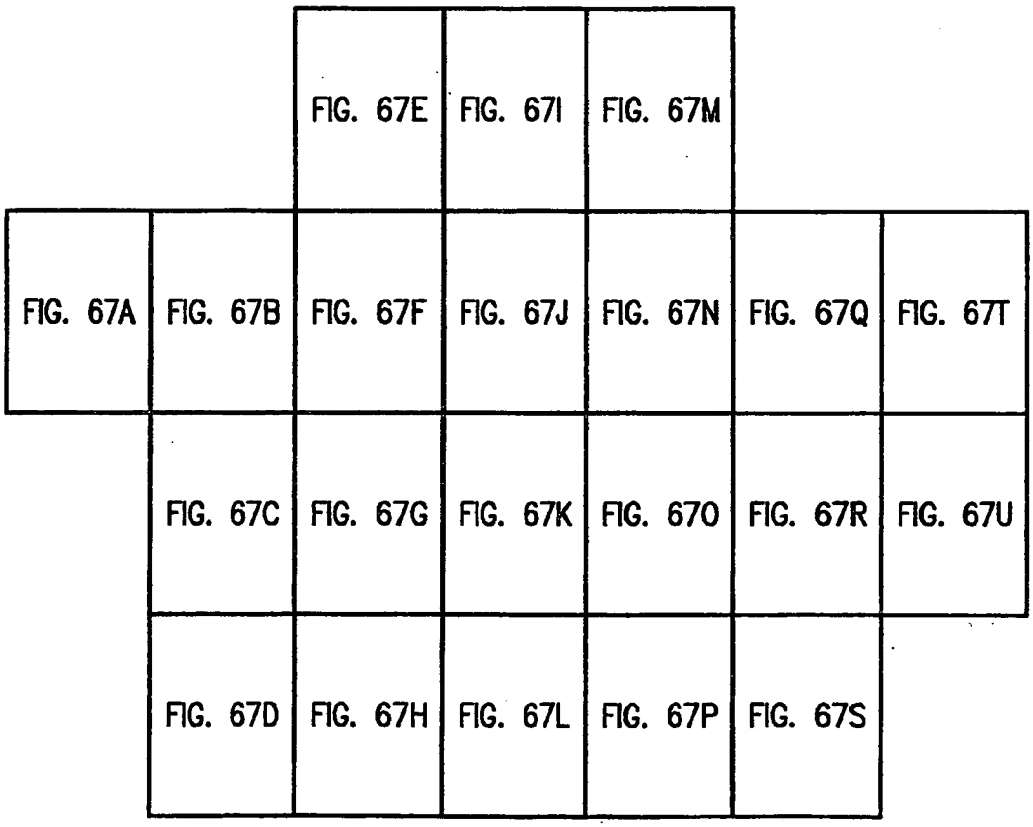


FIG. 67E
FIG. 67I
FIG. 67M
FIG. 67A
FIG. 67B
FIG. 67F
FIG. 67J
FIG. 67N
FIG. 67Q
FIG. 67T
FIG. 67C
FIG. 67G
FIG. 67K
FIG. 67O
FIG. 67R
FIG. 67U
FIG. 67D
FIG. 67H
FIG. 67L
FIG. 67P
FIG. 67S

FIG. 67A

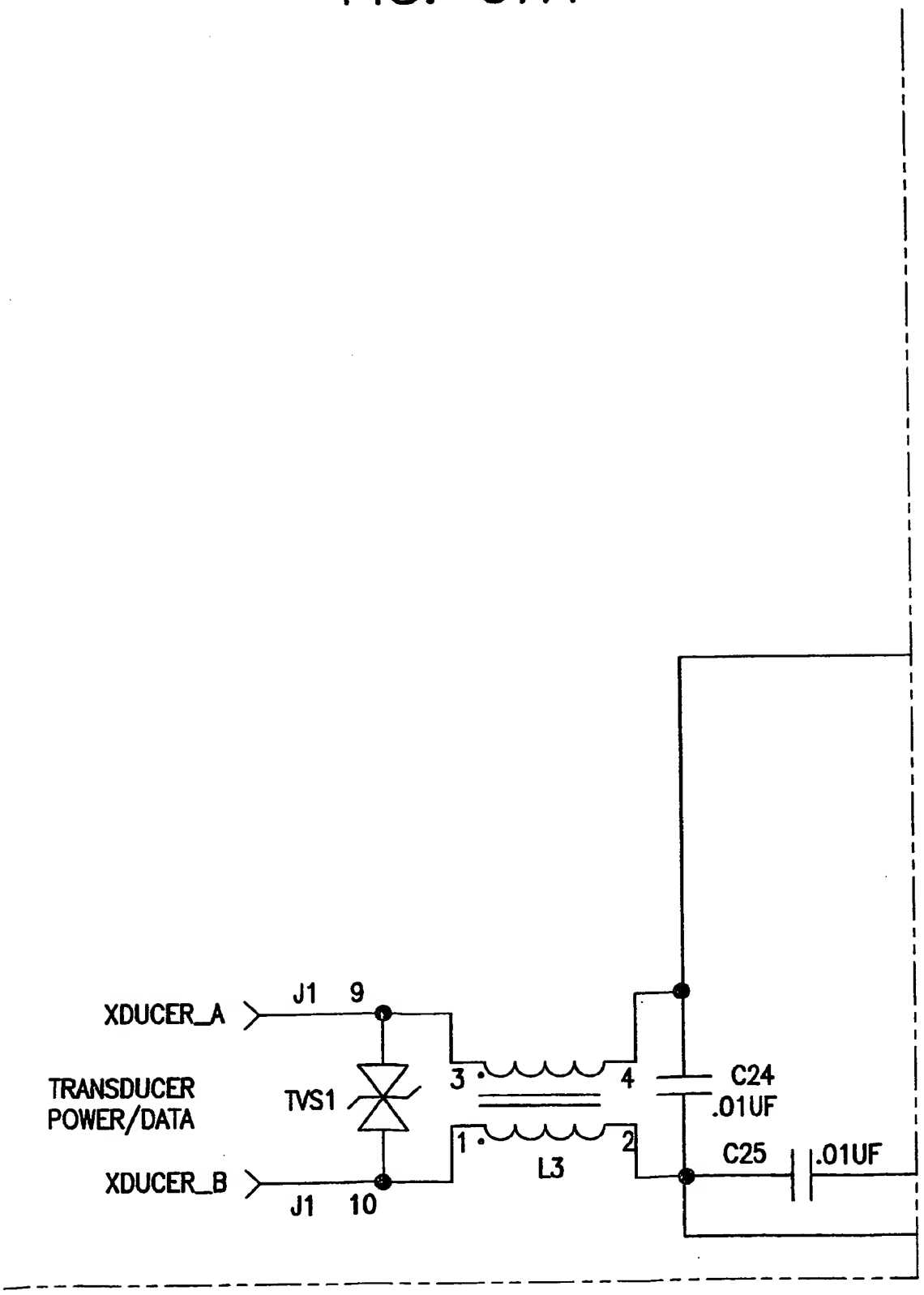

XDUCER_A
J1 9
TRANSDUCER
POWER/DATA
TVS1
3
4
C24
.01UF
1
2
L3
C25
.01UF
XDUCER_B
J1 10

FIG. 67B

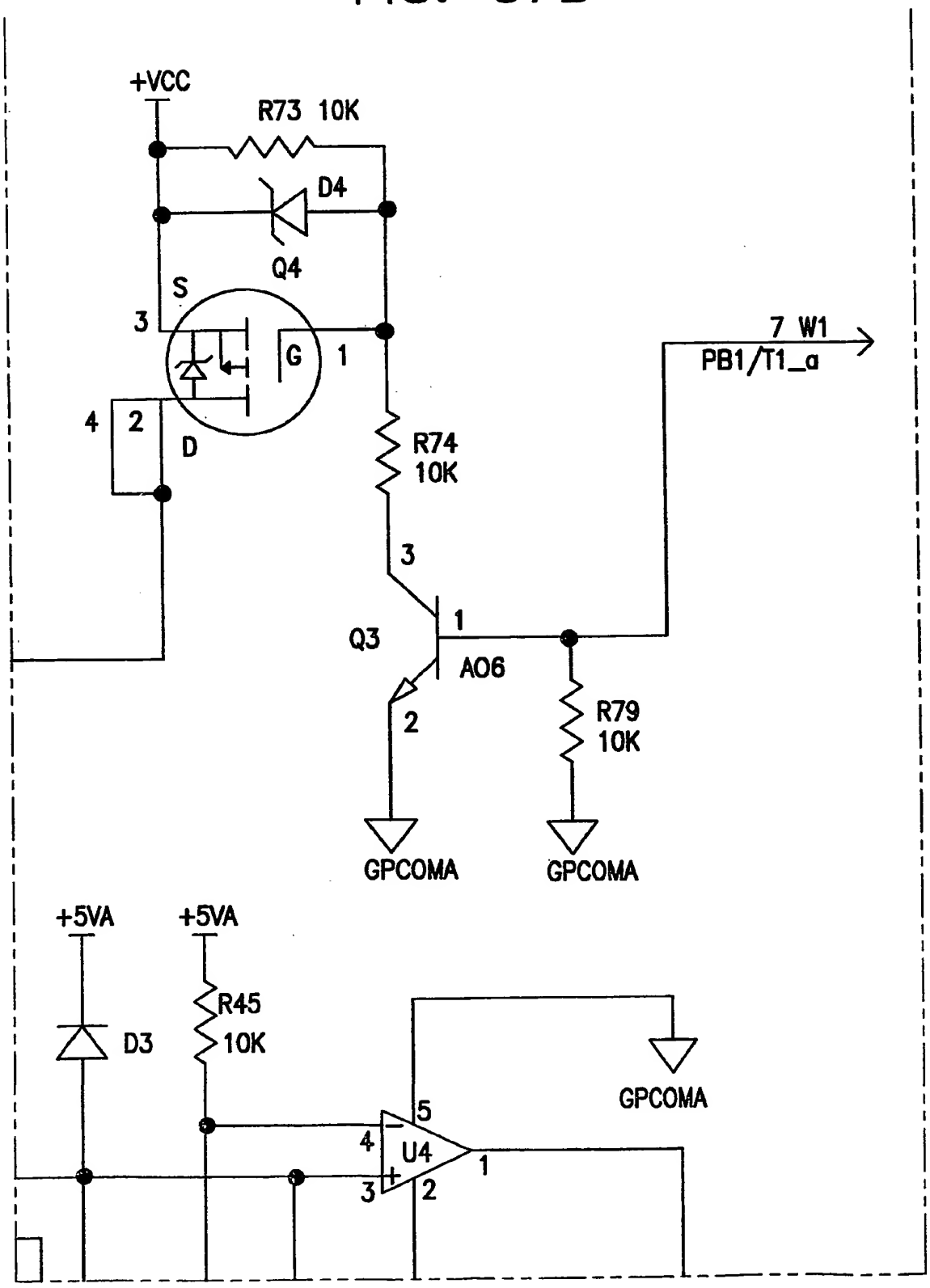

+VCC
R73 10K
D4
Q4
S
3
G
1
4
2
D
7 W1
PB1/T1_a
R74
10K
3
1
Q3
AO6
2
R79
10K
GPCOMA
GPCOMA
+5VA
+5VA
R45
10K
D3
GPCOMA
5
4
U4
1
3
2

FIG. 67C

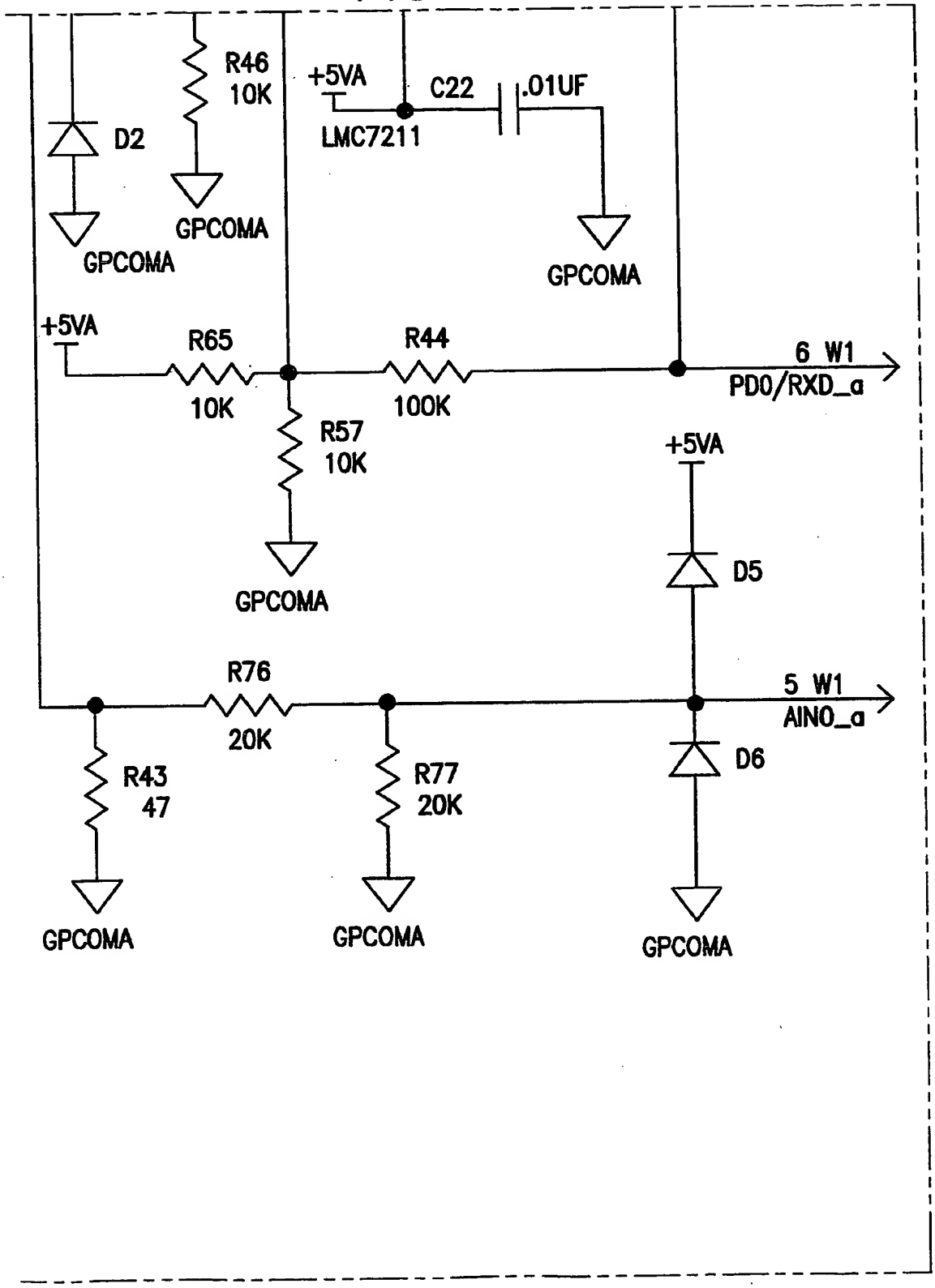

R46
10K
D2
GPCOMA
GPCOMA
+5VA
C22
.01UF
LMC7211
GPCOMA
+5VA
R65
10K
R44
100K
6 W1
PD0/RXD_a
R57
10K
GPCOMA
+5VA
D5
R76
20K
5 W1
AIN0_a
D6
R43
47
R77
20K
GPCOMA
GPCOMA
GPCOMA

FIG. 67D

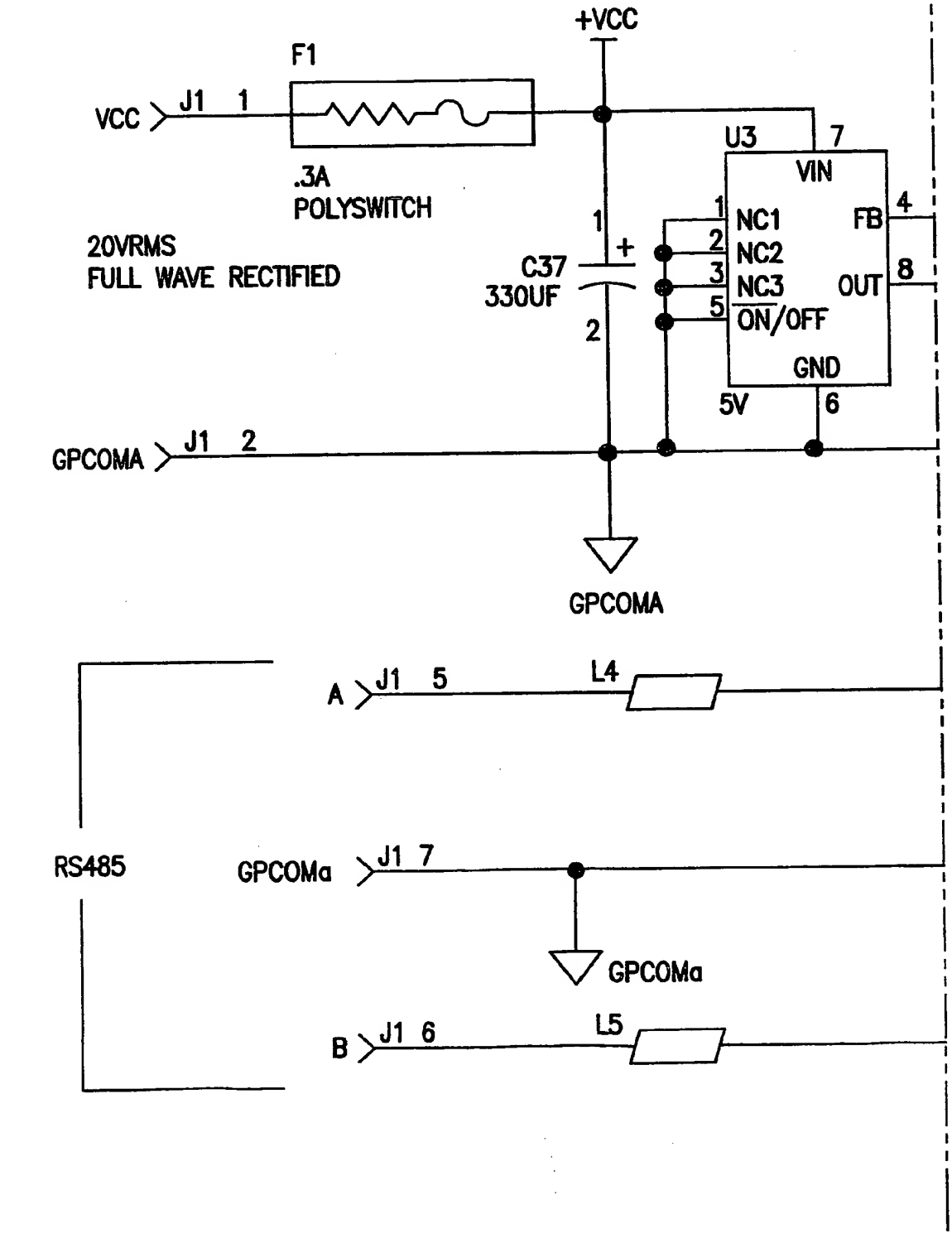

+VCC
F1
VCC
J1 1
.3A
POLYSWITCH
20VRMS
FULL WAVE RECTIFIED
C37
330UF
U3
7
VIN
1
NC1
2
NC2
3
NC3
5
ON/OFF
FB
4
OUT
8
GND
5V
6
GPCOMA
J1 2
GPCOMA
A
J1 5
L4
RS485
GPCOMa
J1 7
GPCOMa
B
J1 6
L5

FIG. 67E

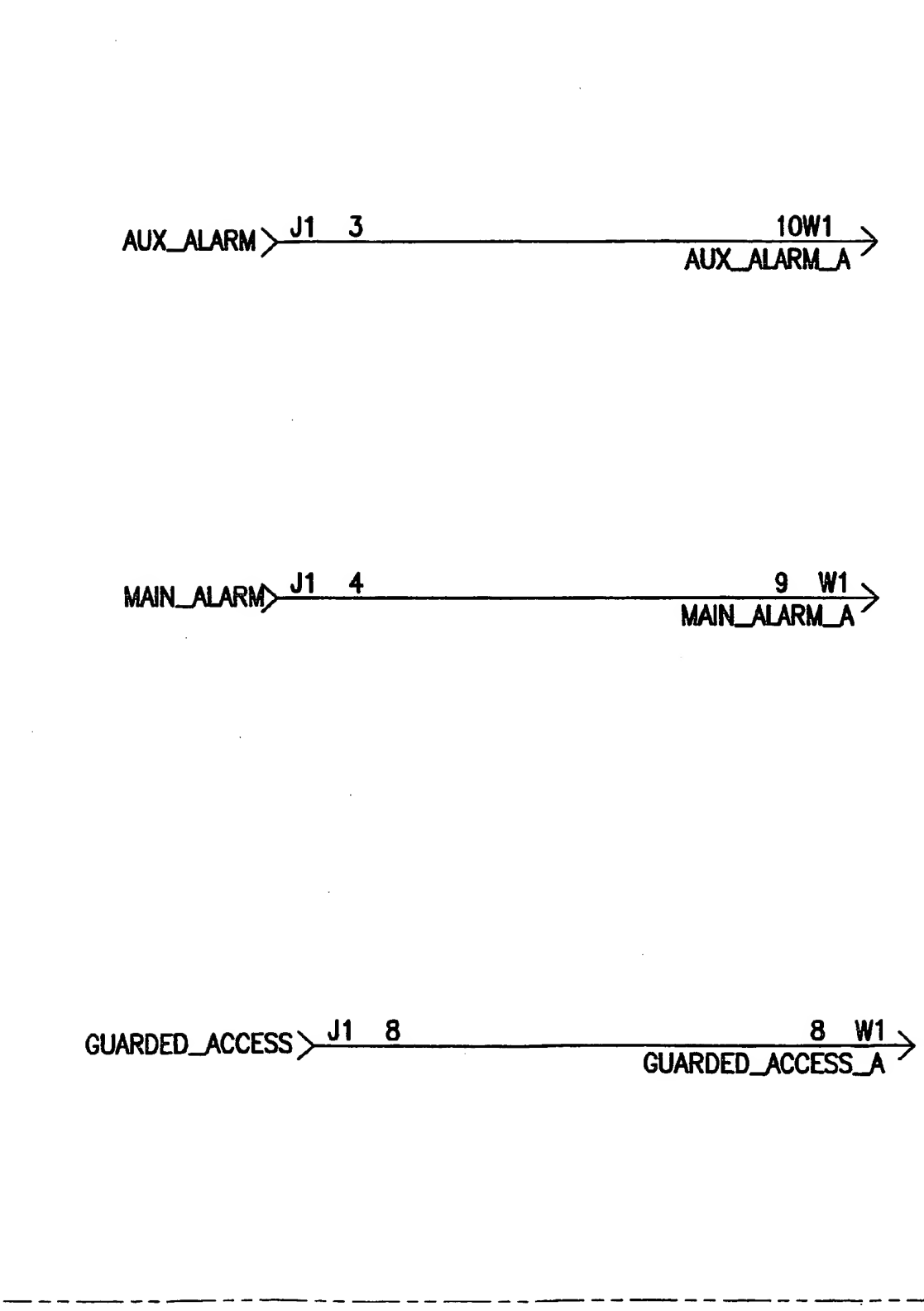

AUX_ALARM
J1 3
10W1
AUX_ALARM_A
MAIN_ALARM
J1 4
9 W1
MAIN_ALARM_A
GUARDED_ACCESS
J1 8
8 W1
GUARDED_ACCESS_A

FIG. 67F

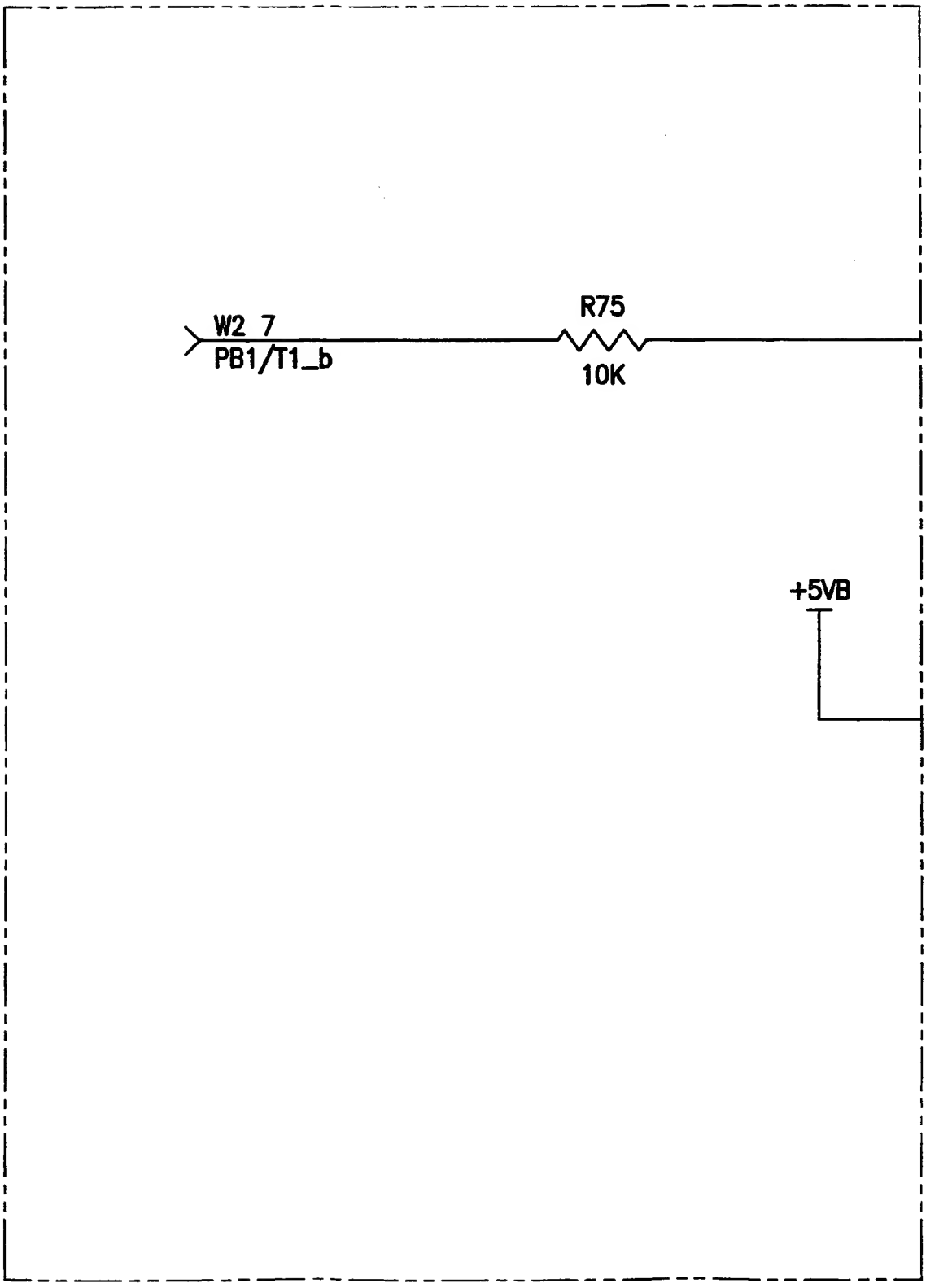


FIG. 67G

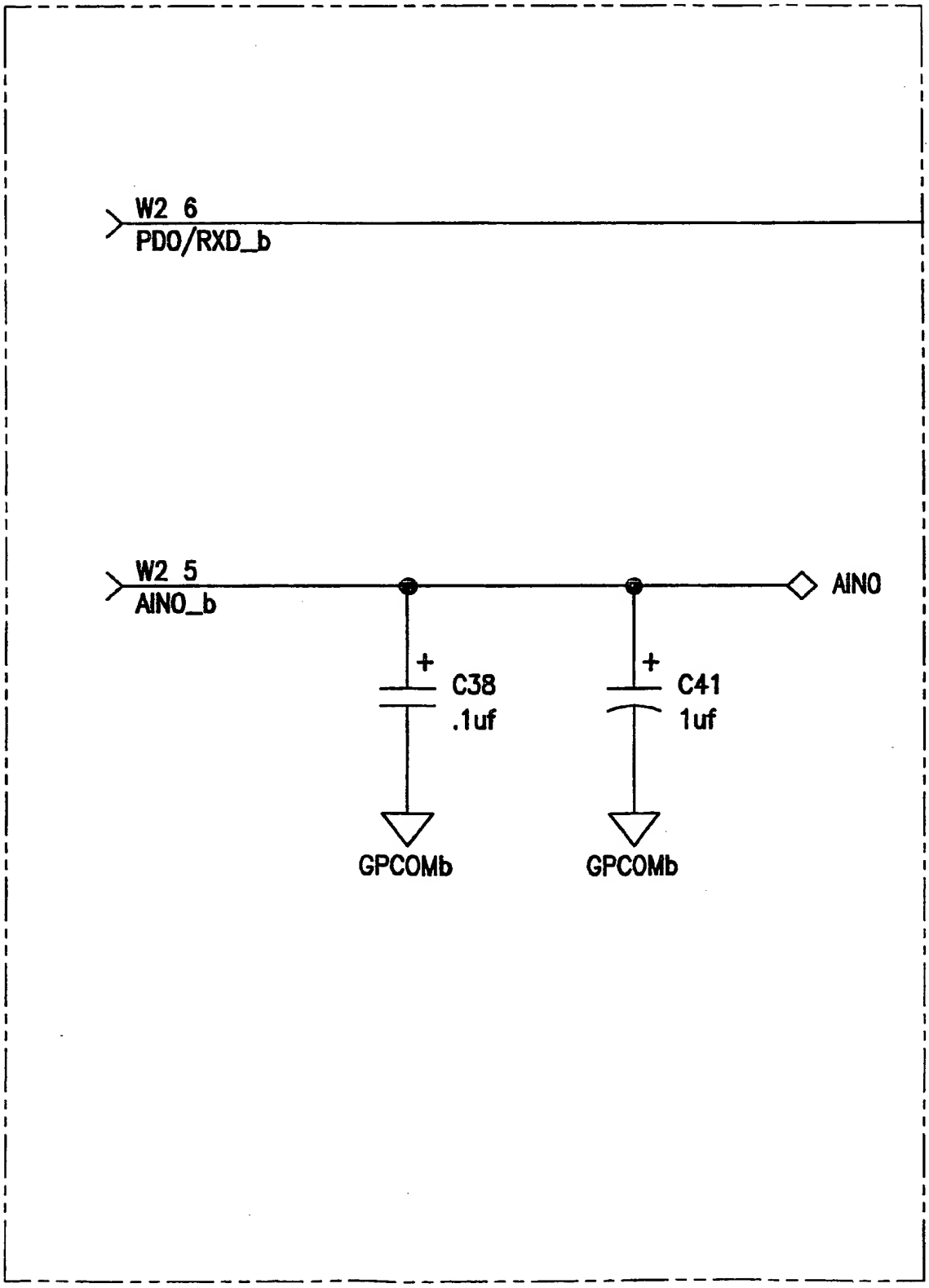


FIG. 67H

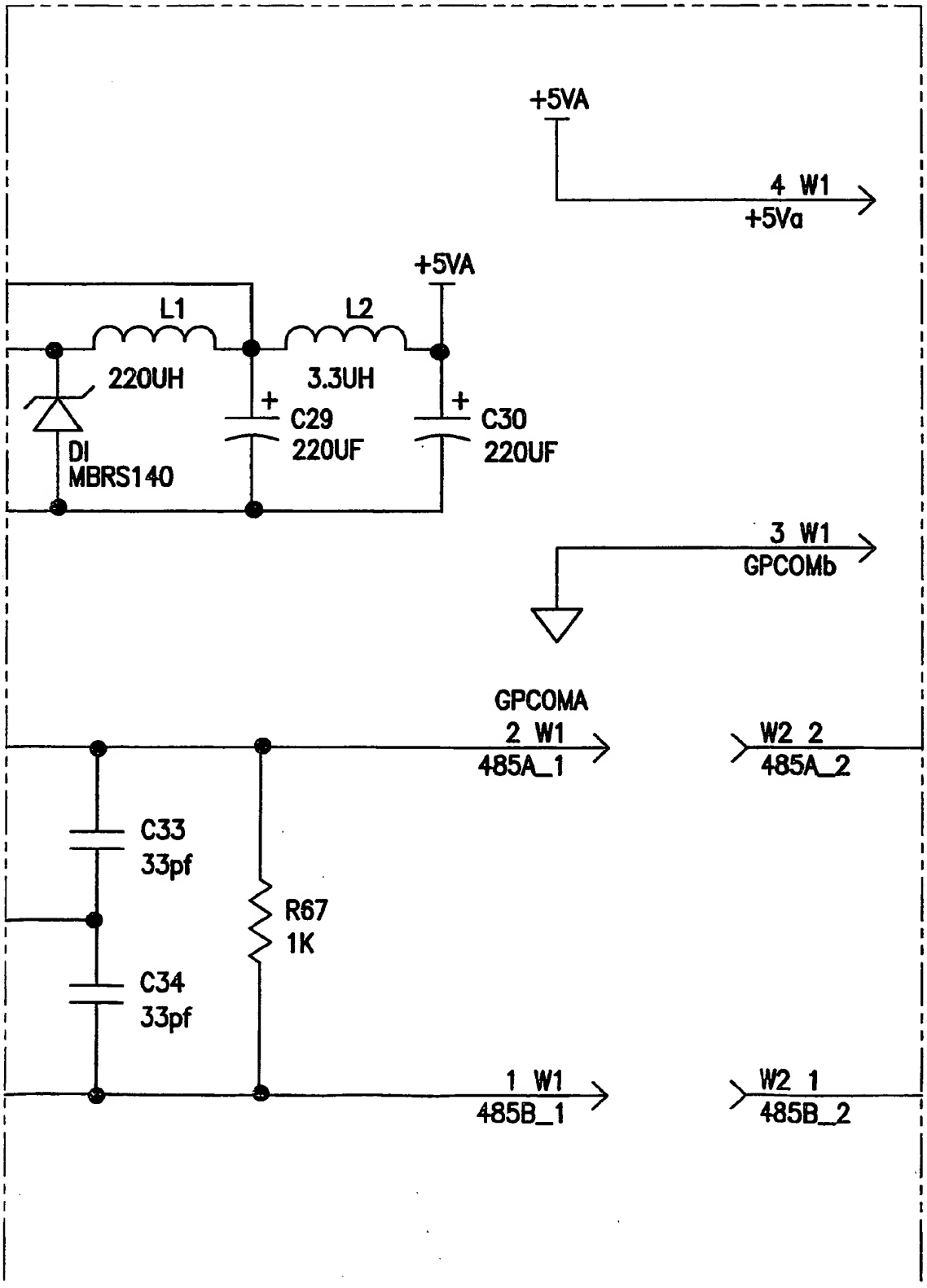

+5VA
4 W1
+5Va
+5VA
L1
L2
220UH
3.3UH
C29
220UF
C30
220UF
DI
MBRS140
3 W1
GPCOMb
GPCOMA
2 W1
485A_1
W2 2
485A_2
C33
33pf
R67
1K
C34
33pf
1 W1
485B_1
W2 1
485B_2

FIG. 671

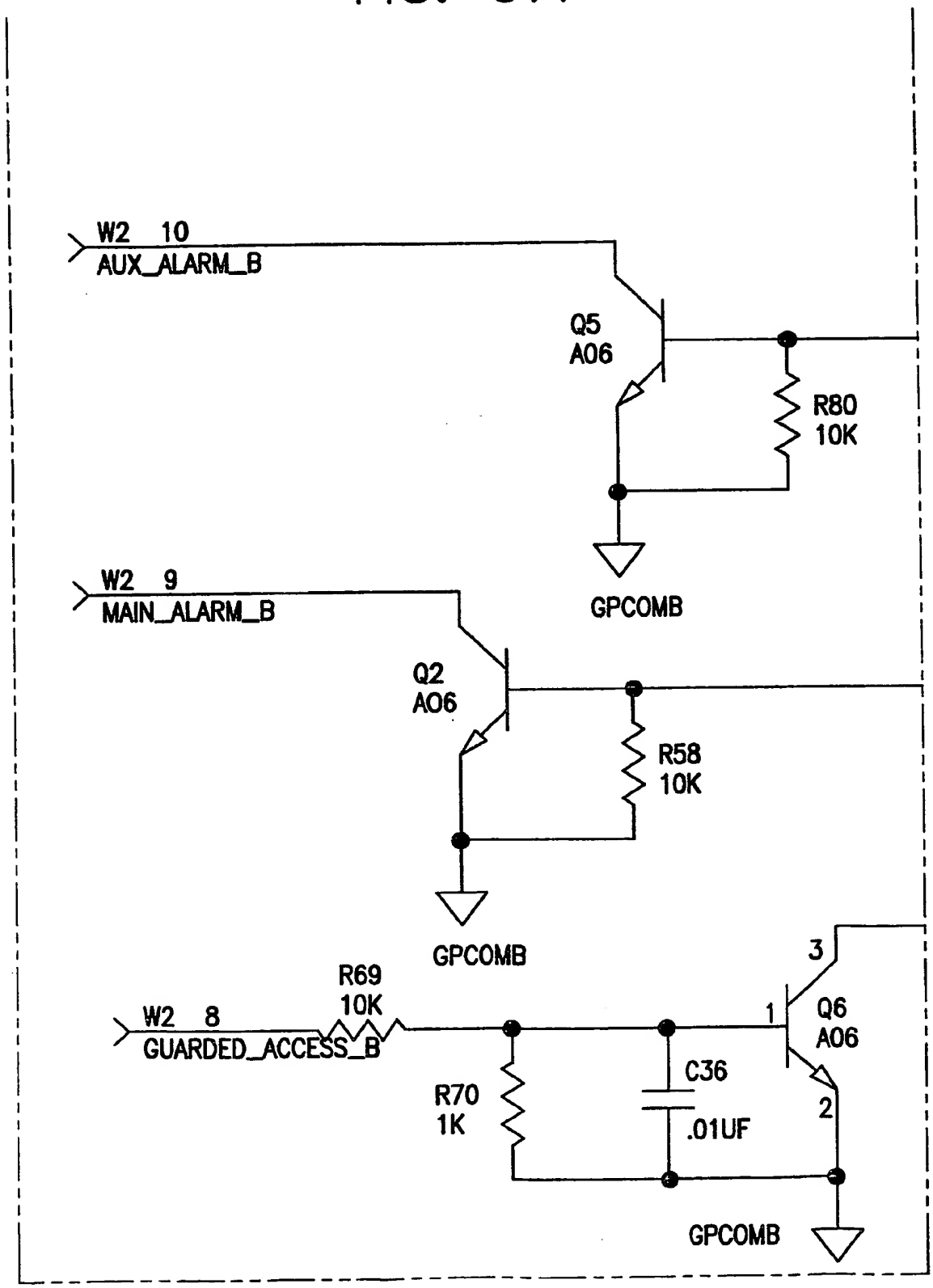

W2 10
AUX_ALARM_B
Q5
A06
R80
10K
GPCOMB
W2 9
MAIN_ALARM_B
Q2
A06
R58
10K
GPCOMB
R69
10K
W2 8
GUARDED_ACCESS_B
3
1
Q6
A06
C36
.01UF
2
R70
1K
GPCOMB

FIG. 67J

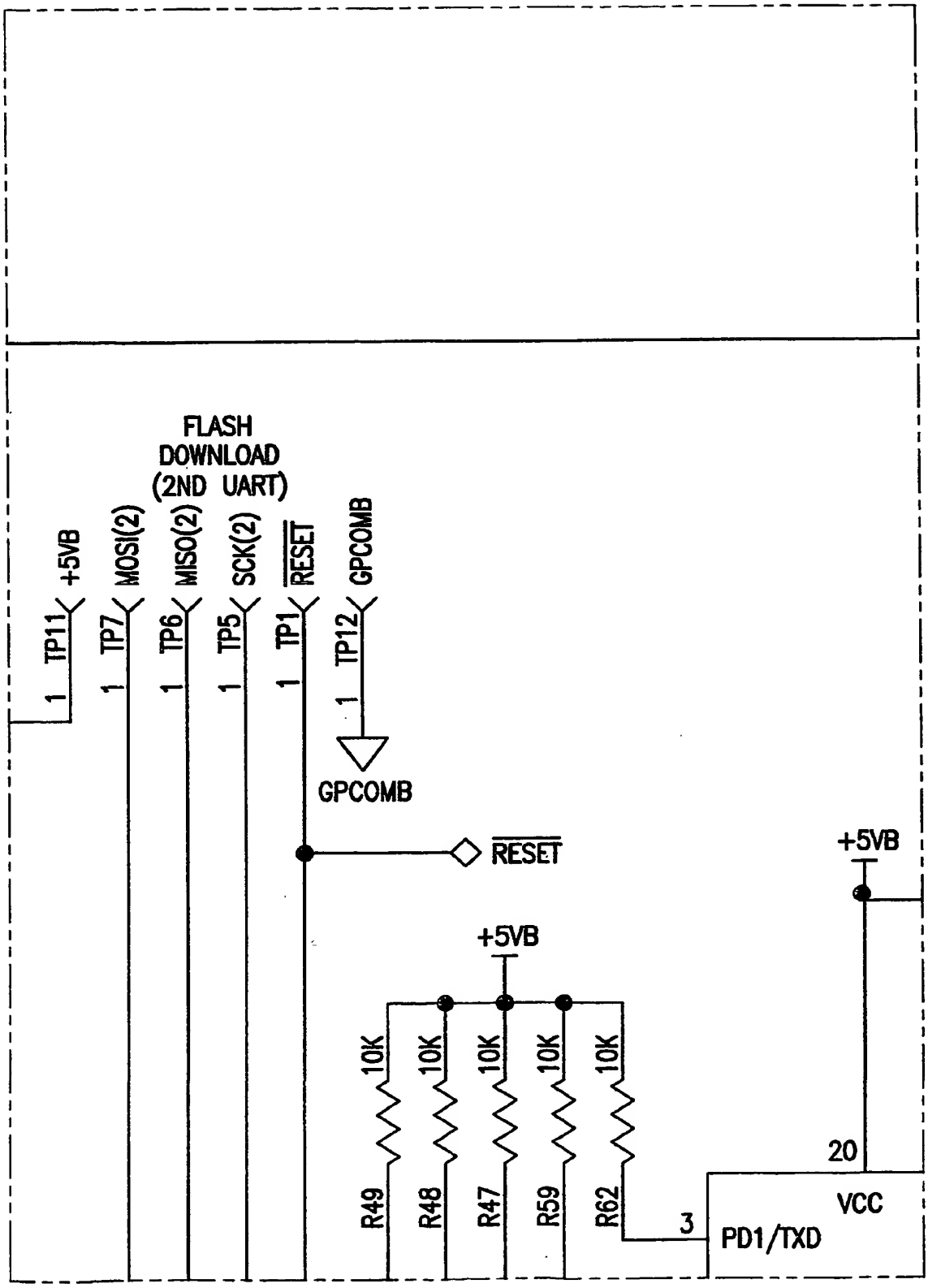

FLASH
DOWNLOAD
(2ND UART)
+5VB
MOSI(2)
MISO(2)
SCK(2)
RESET
GPCOMB
TP11
TP7
TP6
TP5
TP1
TP12
GPCOMB
RESET
+5VB
+5VB
10K
10K
10K
10K
10K
R49
R48
R47
R59
R62
20
VCC
3
PD1/TXD

FIG. 67K

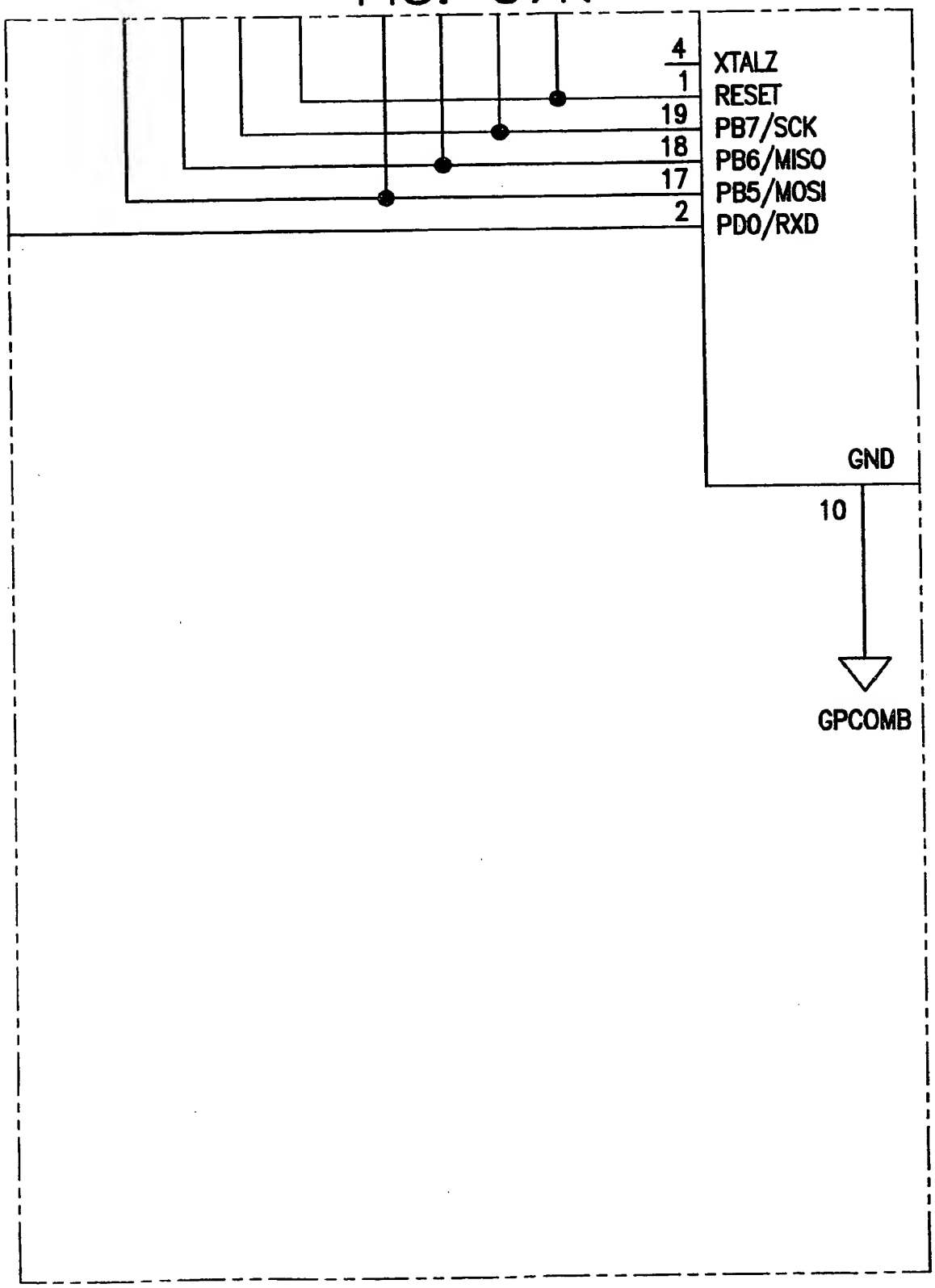

4
XTALZ
1
RESET
19
PB7/SCK
18
PB6/MISO
17
PB5/MOSI
2
PD0/RXD
GND
10
GPCOMB

FIG. 67L

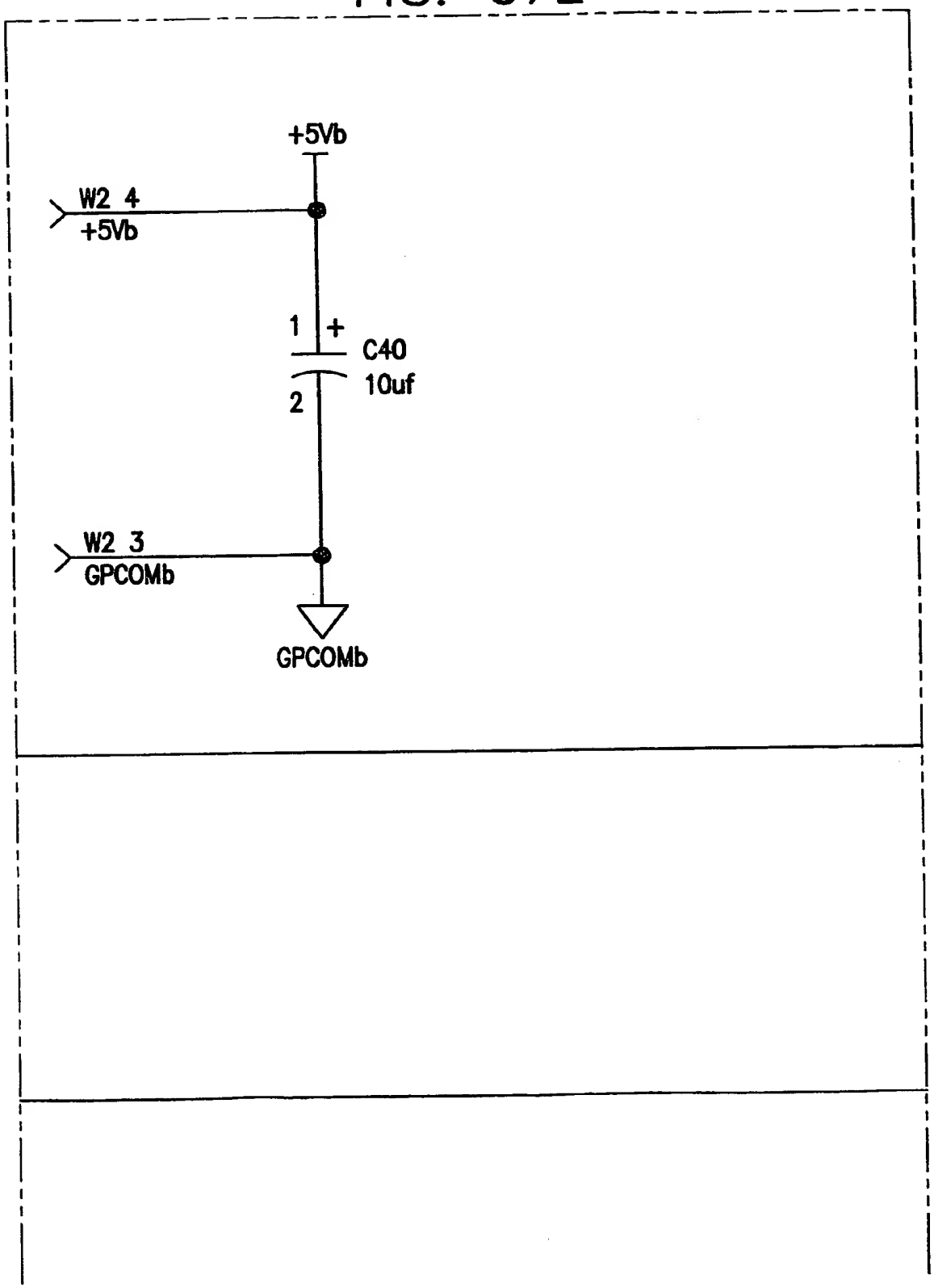


FIG. 67M

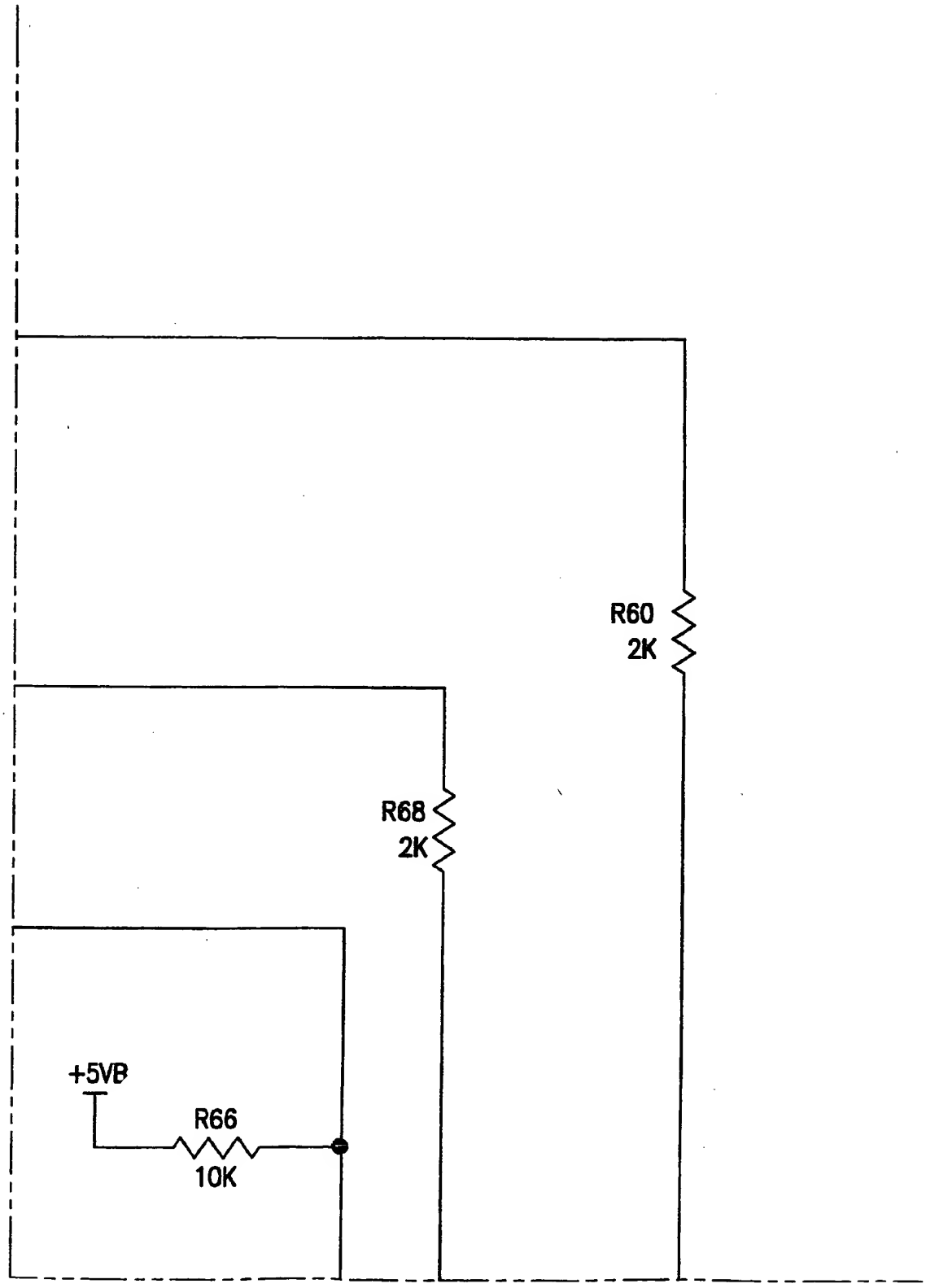


FIG. 67N

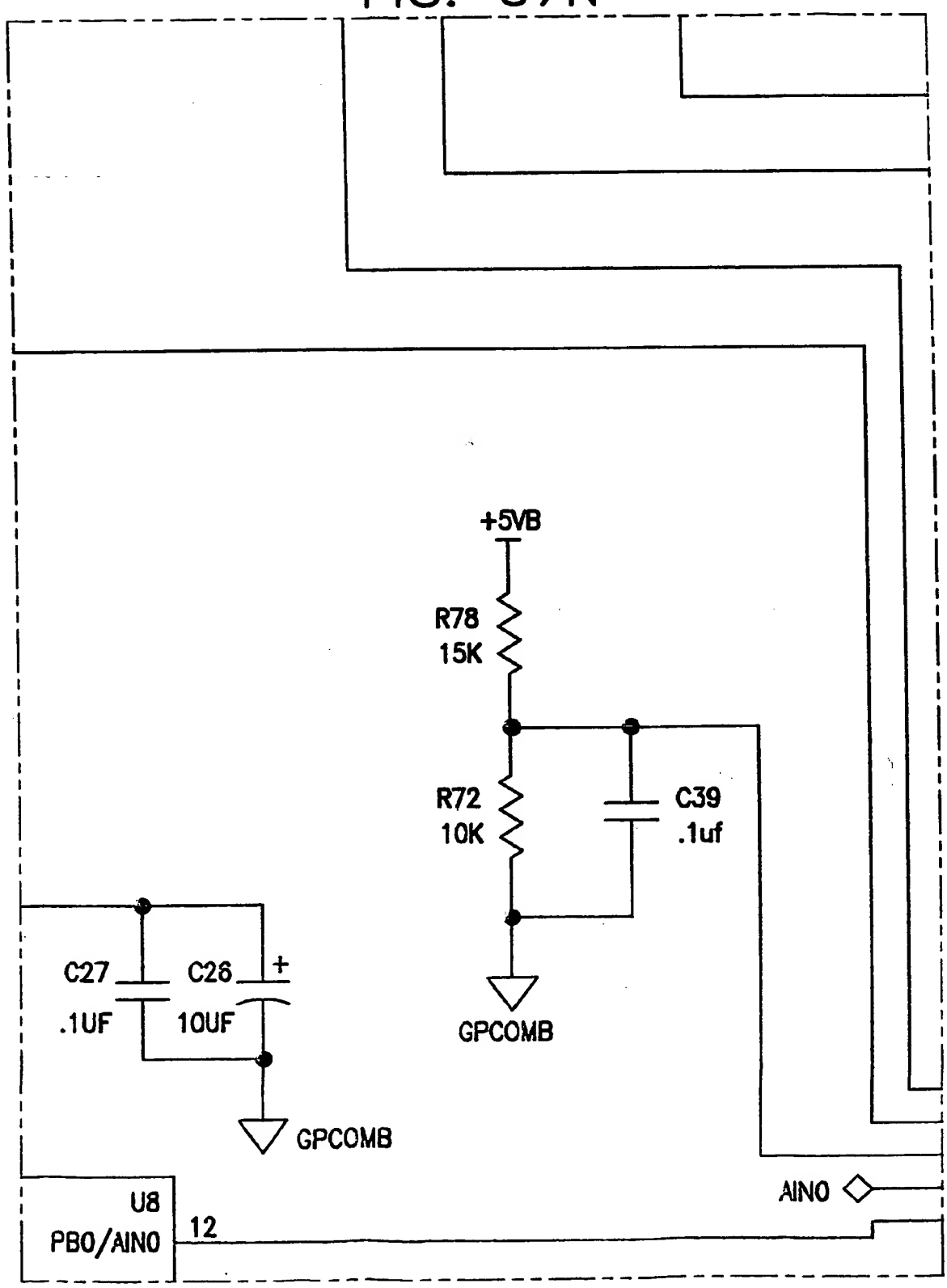

+5VB
R78
15K
R72
10K
C39
.1uf
GPCOMB
C27
.1UF
C26
10UF
+
GPCOMB
AIN0
U8
PB0/AIN0
12

FIG. 670

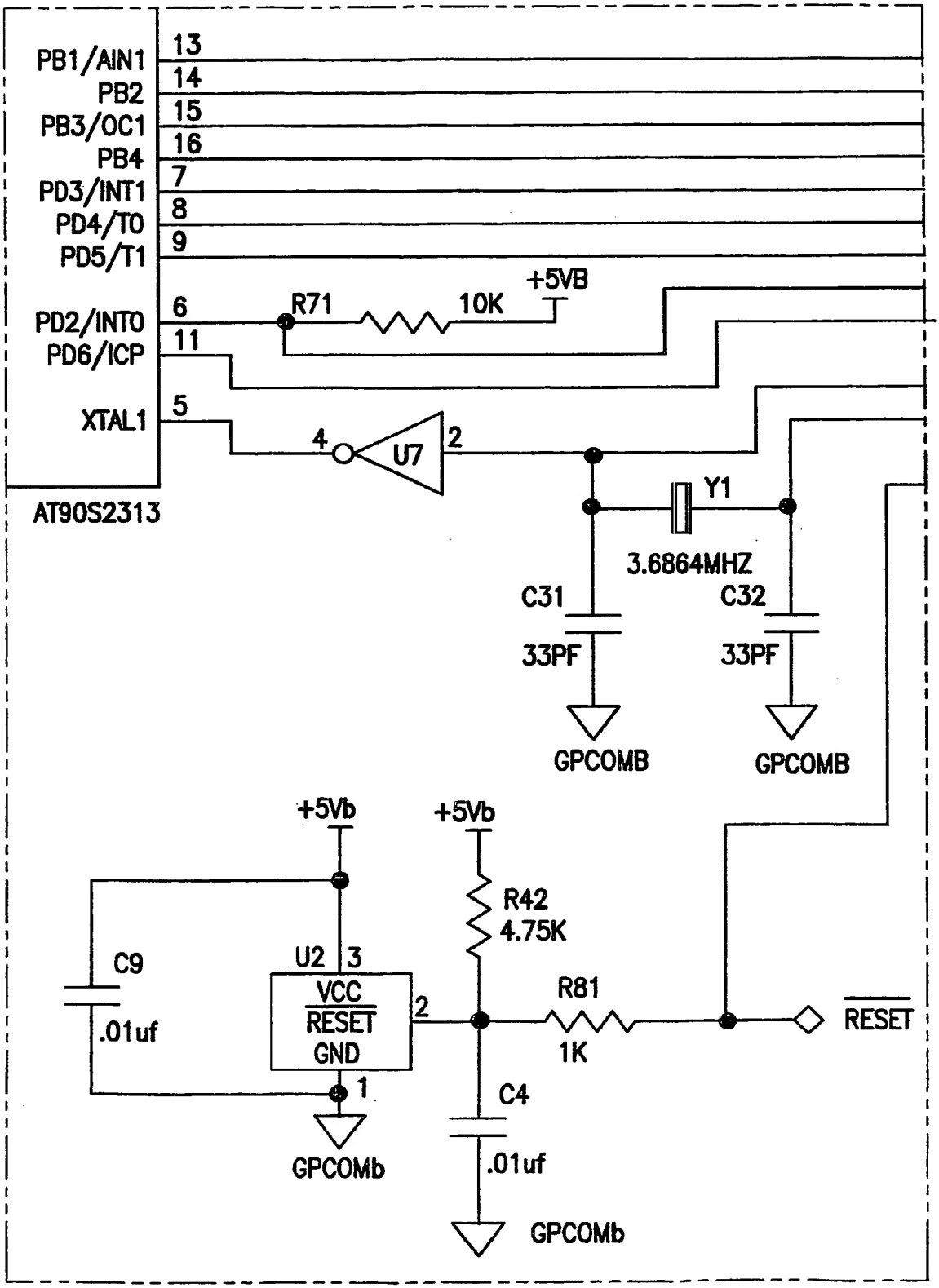

PB1/AIN1
PB2
PB3/OC1
PB4
PD3/INT1
PD4/T0
PD5/T1
PD2/INT0
PD6/ICP
XTAL1
AT90S2313
13
14
15
16
7
8
9
6
11
5
R71
10K
+5VB
4
U7
2
Y1
3.6864MHZ
C31
33PF
C32
33PF
GPCOMB
GPCOMB
+5Vb
+5Vb
R42
4.75K
C9
.01uf
U2
3
VCC
RESET
GND
2
1
R81
1K
RESET
C4
.01uf
GPCOMb
GPCOMb

FIG. 67P

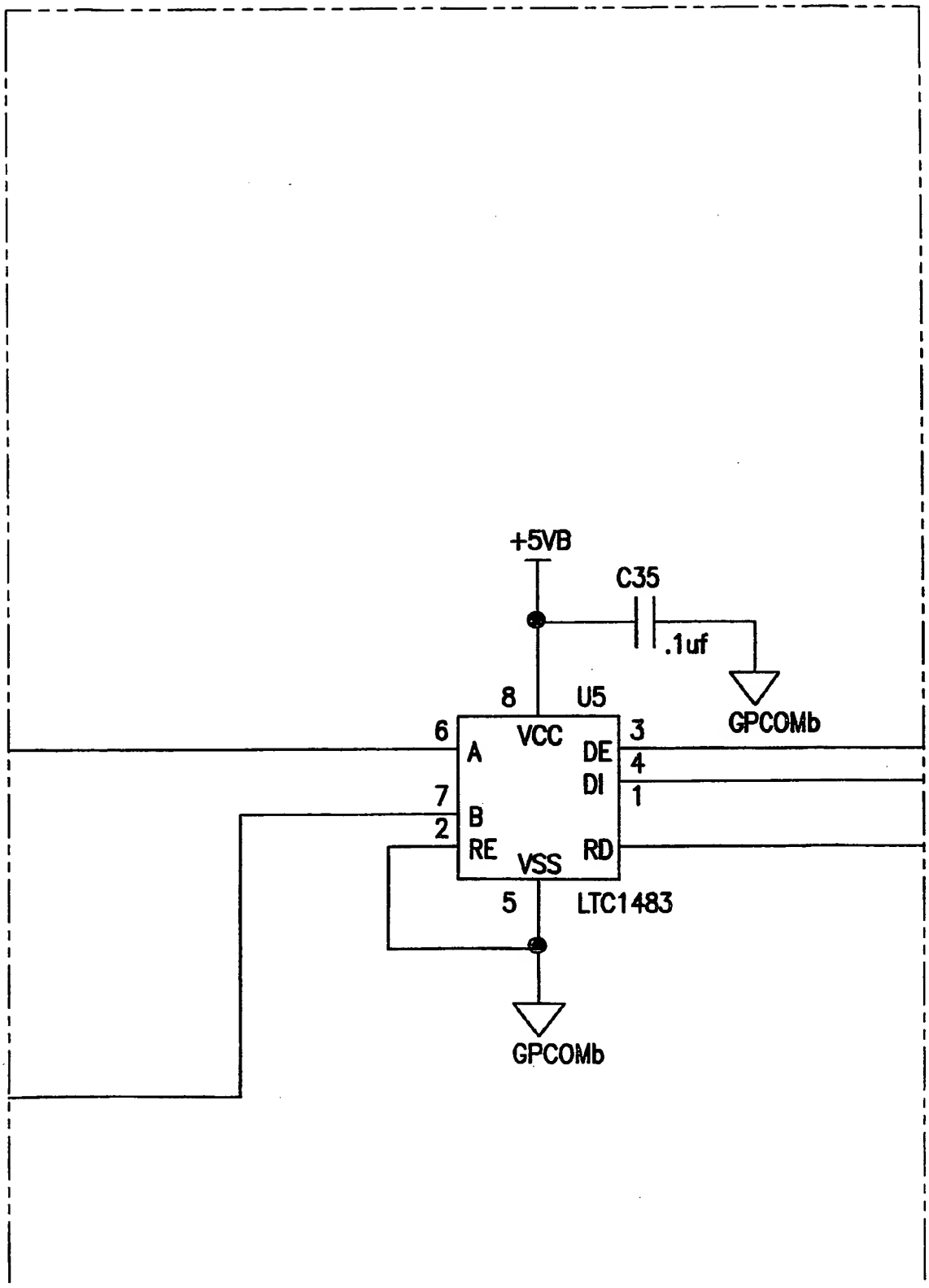

+5VB
C35
.1uf
GPCOMb
8
U5
6
A
VCC
3
DE
4
DI
1
7
B
2
RE
VSS
RD
5
LTC1483
GPCOMb

FIG. 67Q

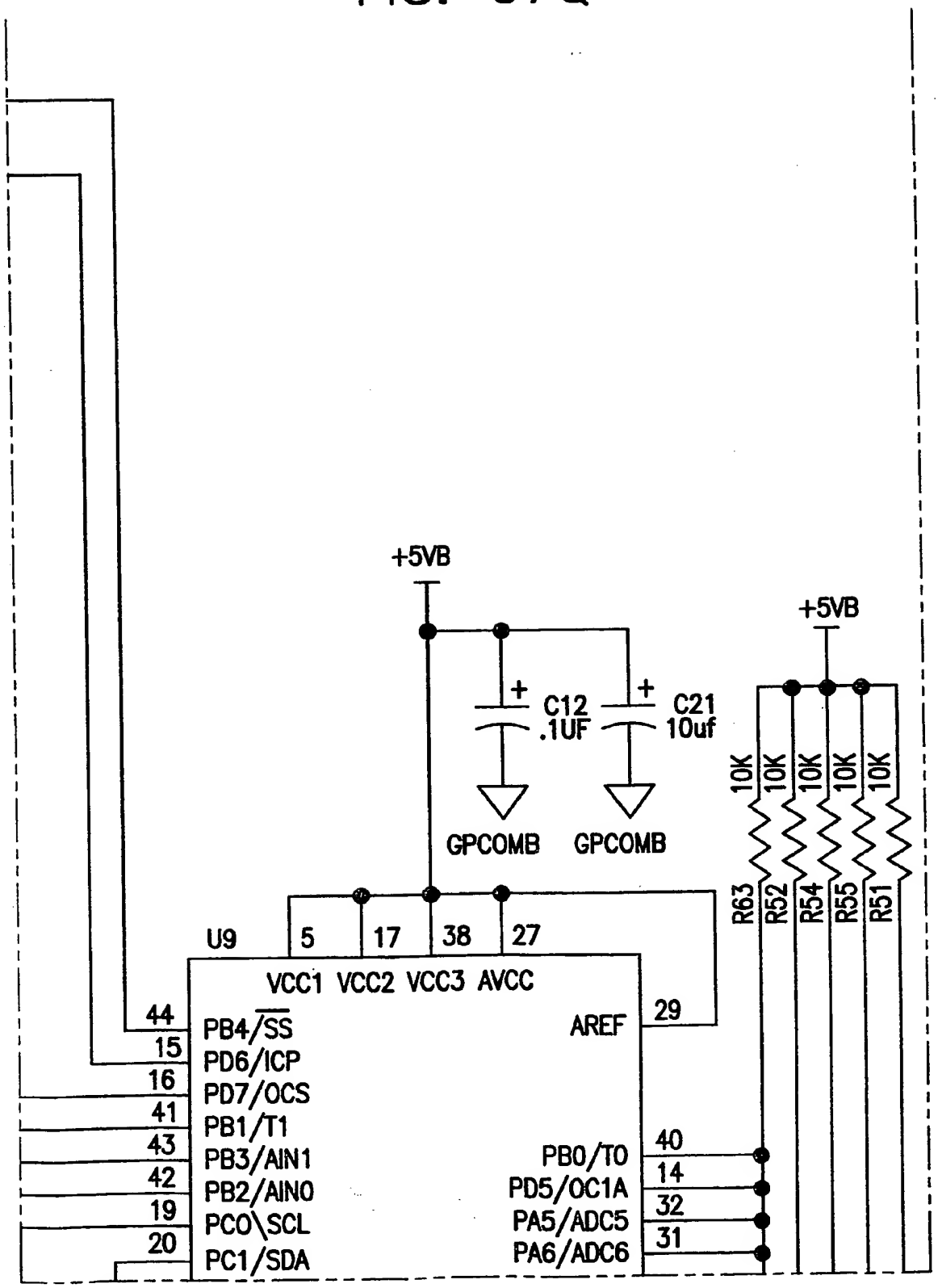

+5VB
+5VB
C12
.1UF
C21
10uf
GPCOMB
GPCOMB
10K
10K
10K
10K
10K
R63
R52
R54
R55
R51
U9
5
17
38
27
VCC1 VCC2 VCC3 AVCC
44
PB4/SS
15
PD6/ICP
16
PD7/OCS
41
PB1/T1
43
PB3/AIN1
42
PB2/AIN0
19
PC0\SCL
20
PC1/SDA
AREF
29
PB0/T0
40
PD5/OC1A
14
PA5/ADC5
32
PA6/ADC6
31

FIG. 67R

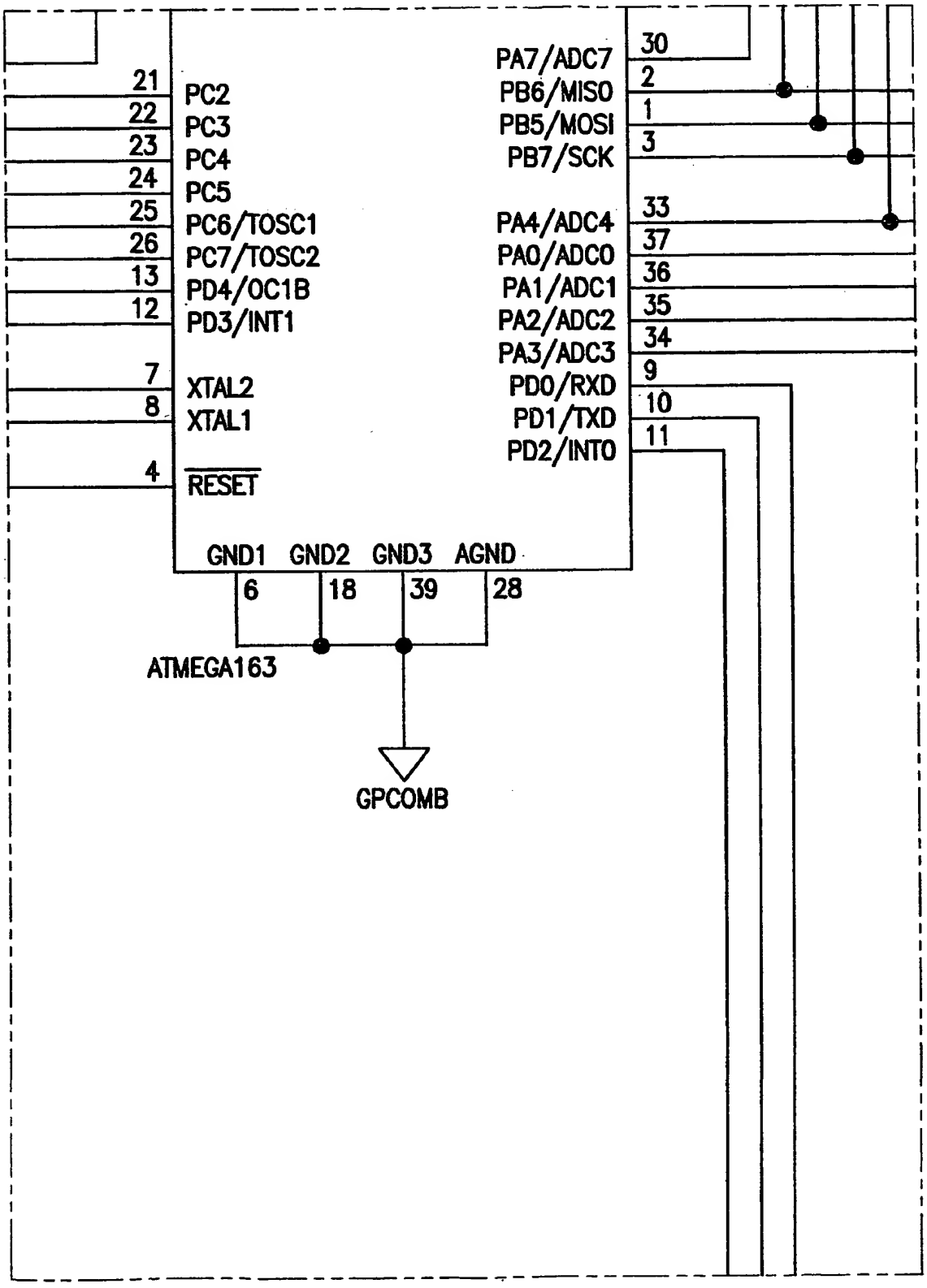

21
22
23
24
25
26
13
12
7
8
4
PC2
PC3
PC4
PC5
PC6/TOSC1
PC7/TOSC2
PD4/OC1B
PD3/INT1
XTAL2
XTAL1
RESET
30
2
1
3
33
37
36
35
34
9
10
11
PA7/ADC7
PB6/MISO
PB5/MOSI
PB7/SCK
PA4/ADC4
PA0/ADC0
PA1/ADC1
PA2/ADC2
PA3/ADC3
PD0/RXD
PD1/TXD
PD2/INT0
GND1
GND2
GND3
AGND
6
18
39
28
ATMEGA163
GPCOMB

FIG. 67S

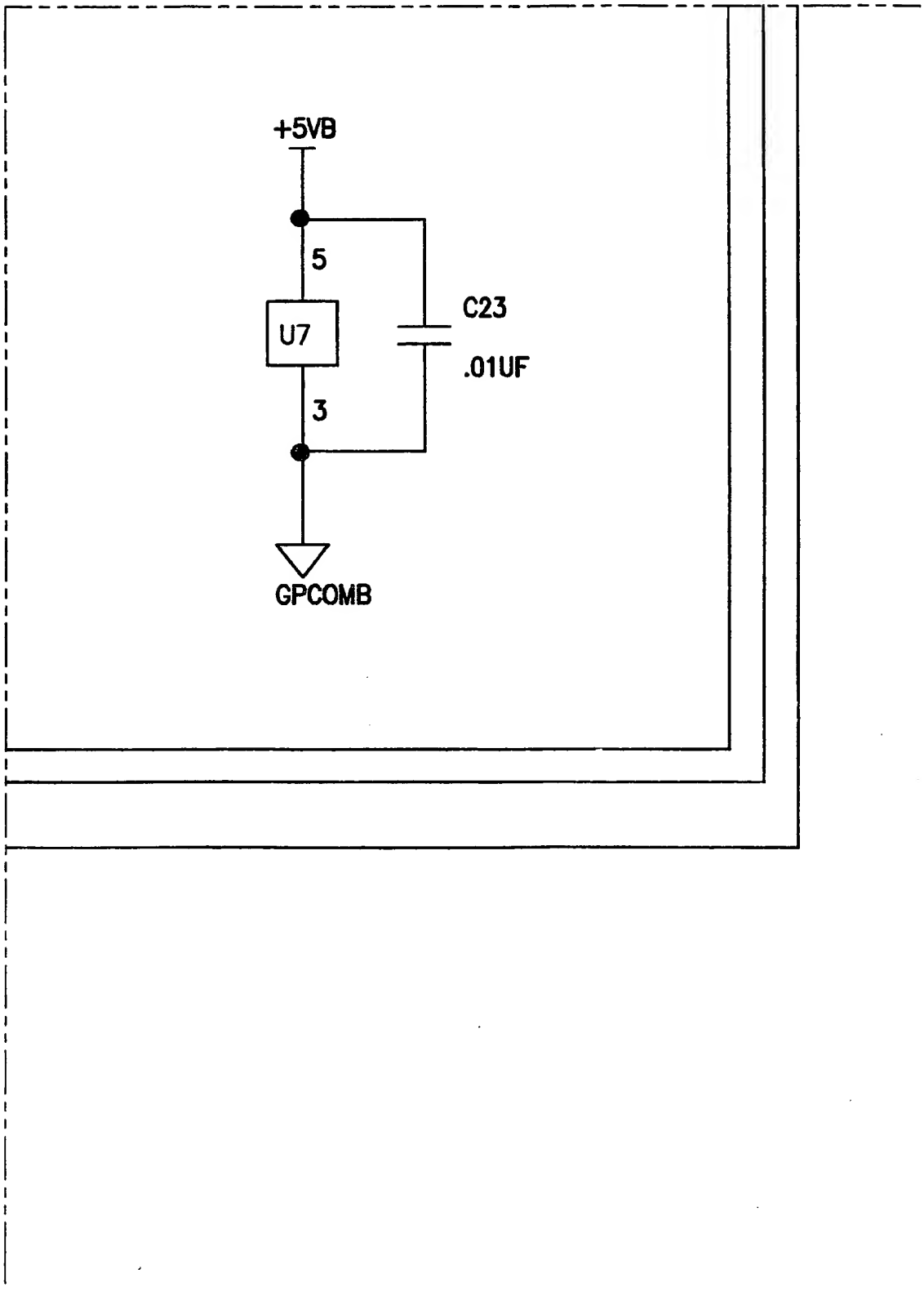


FIG. 67T

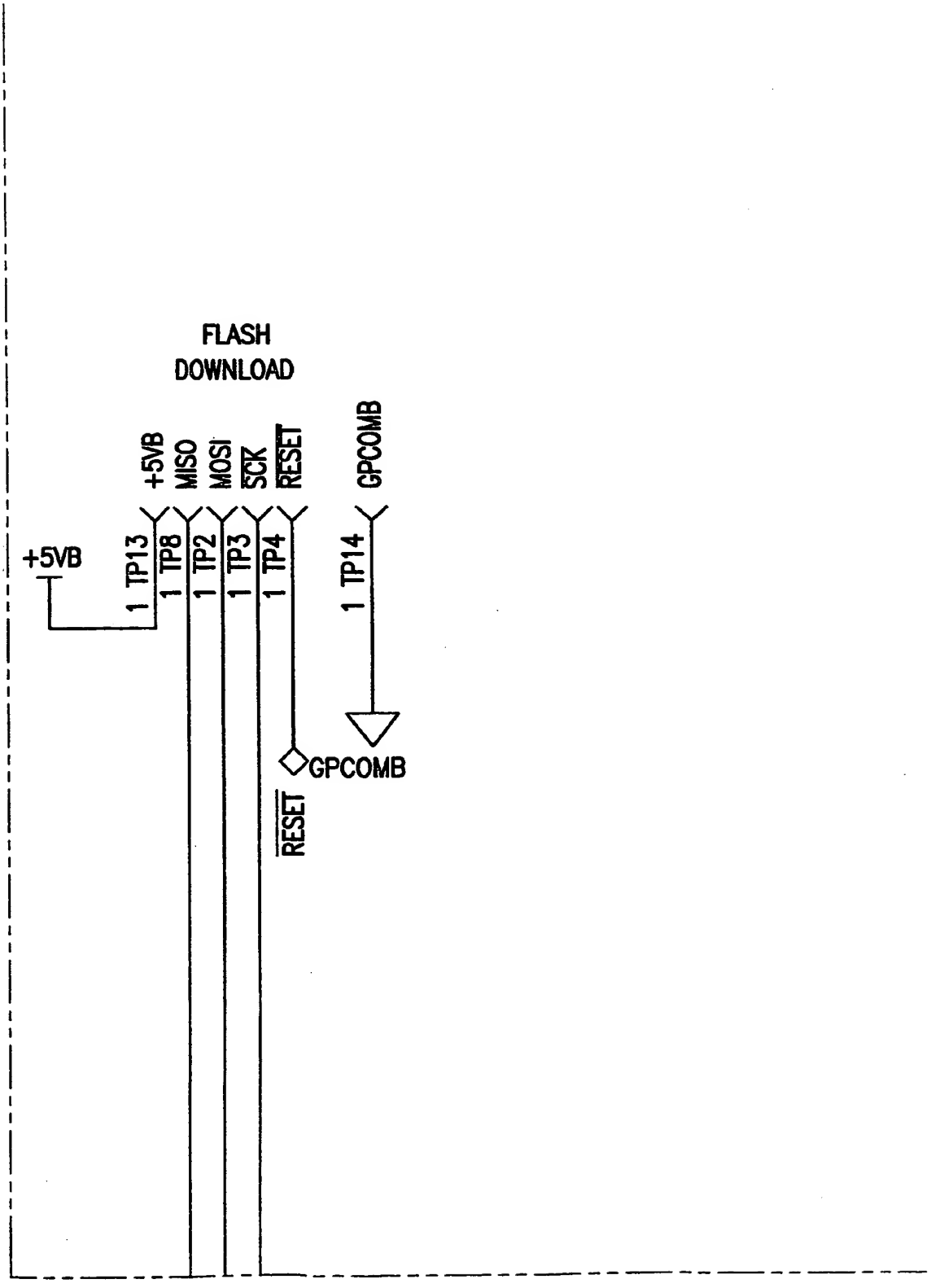

FLASH
DOWNLOAD
+5VB
MISO
MOSI
SCK
RESET
GPCOMB
+5VB
1 TP13
1 TP8
1 TP2
1 TP3
1 TP4
1 TP14
GPCOMB
RESET

FIG. 67U

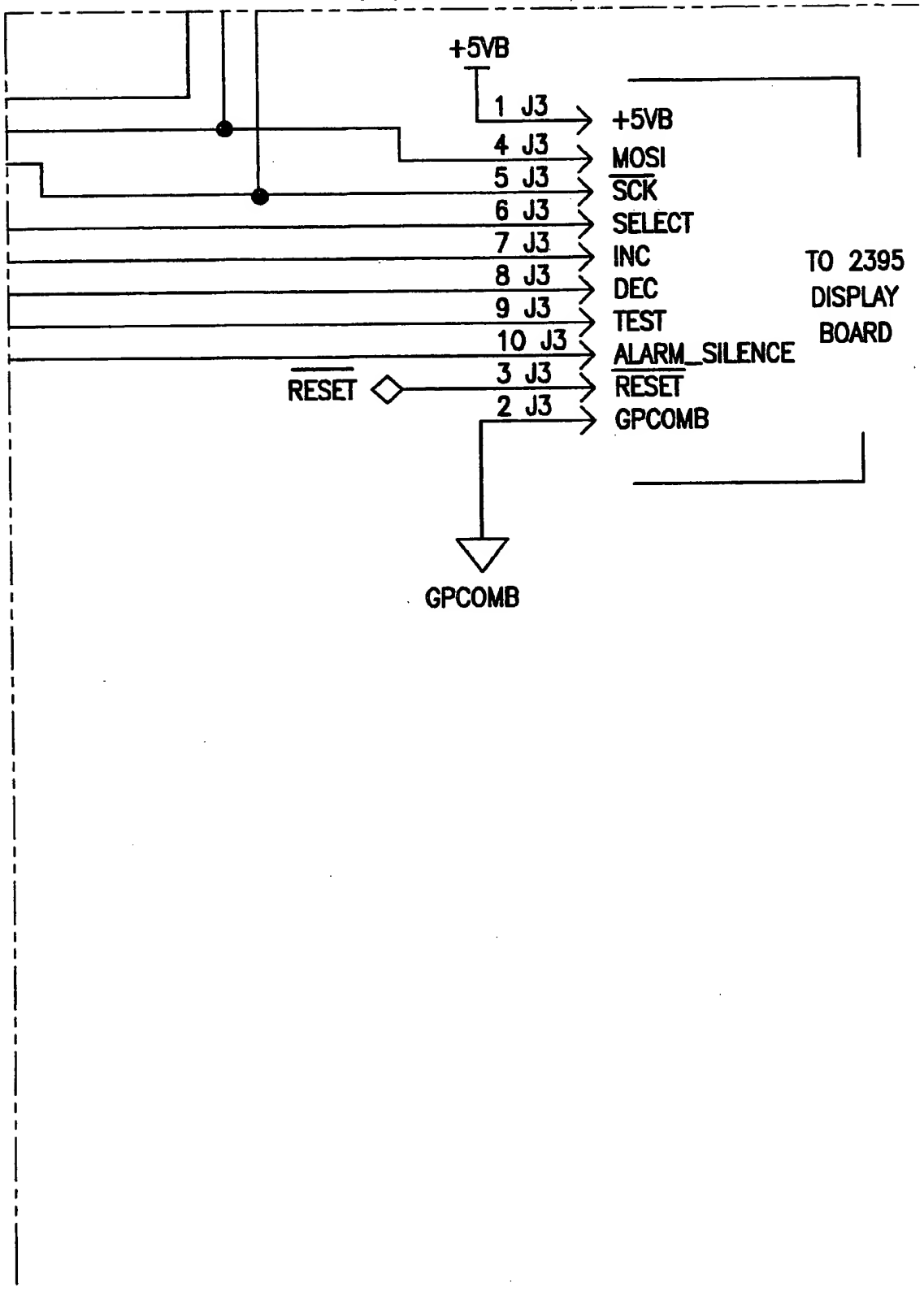

+5VB
1 J3
+5VB
4 J3
MOSI
5 J3
SCK
6 J3
SELECT
7 J3
INC
8 J3
DEC
9 J3
TEST
10 J3
ALARM_SILENCE
3 J3
RESET
2 J3
GPCOMB
TO 2395
DISPLAY
BOARD
RESET
GPCOMB

FIG. 68

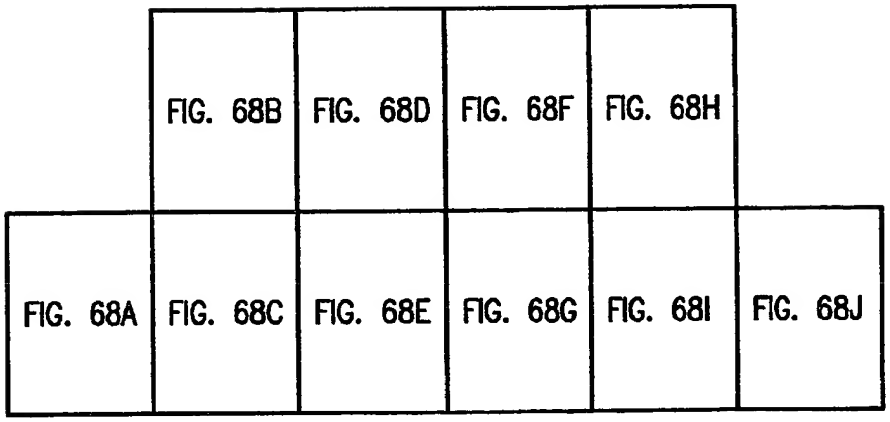


FIG. 68B
FIG. 68D
FIG. 68F
FIG. 68H
FIG. 68A
FIG. 68C
FIG. 68E
FIG. 68G
FIG. 68I
FIG. 68J

FIG. 68A

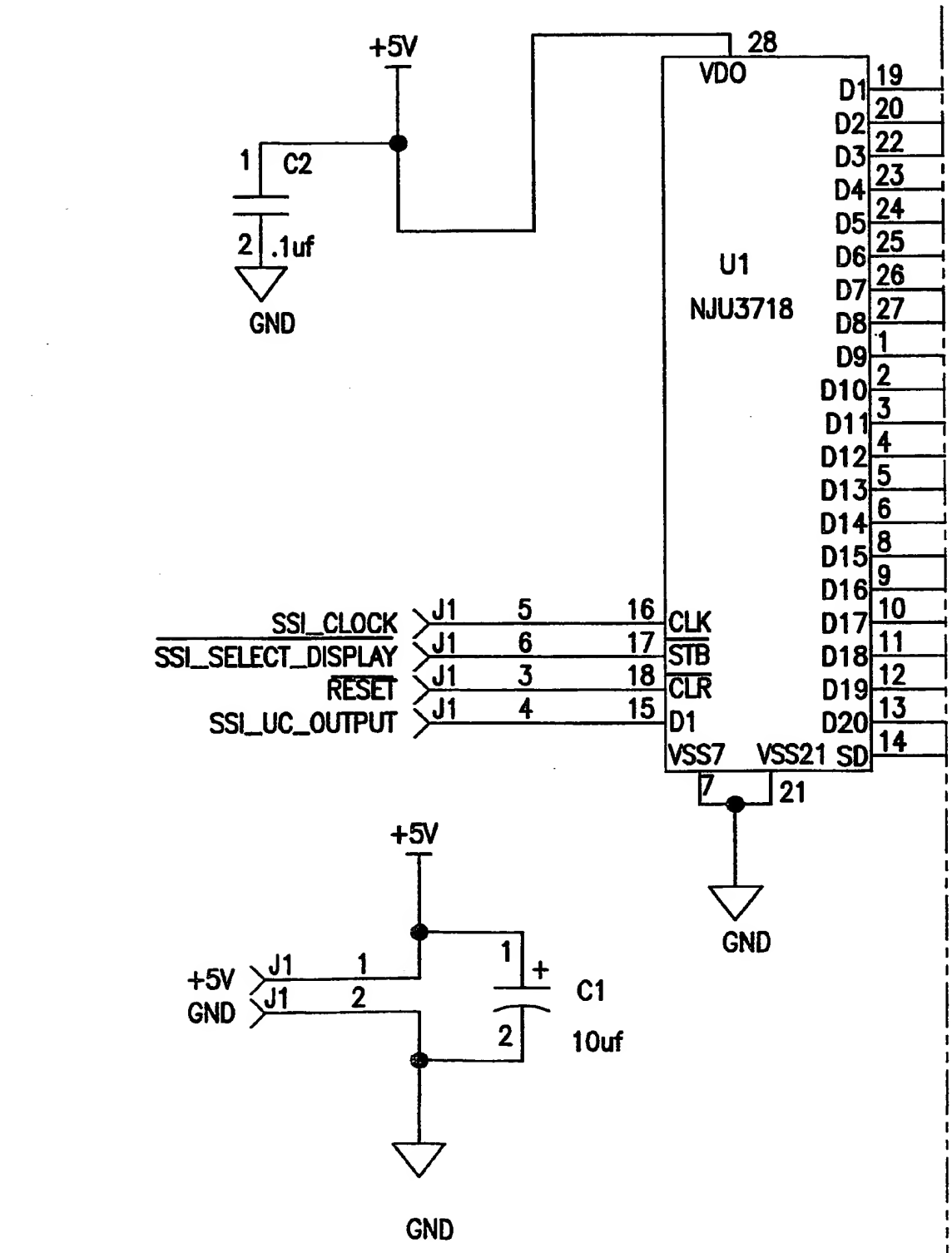

+5V
28
VDO
1
C2
2
.1uf
GND
U1
NJU3718
D1 19
D2 20
D3 22
D4 23
D5 24
D6 25
D7 26
D8 27
D9 1
D10 2
D11 3
D12 4
D13 5
D14 6
D15 8
D16 9
D17 10
D18 11
D19 12
D20 13
SD 14
SSI_CLOCK J1 5 16 CLK
SSI_SELECT_DISPLAY J1 6 17 STB
RESET J1 3 18 CLR
SSI_UC_OUTPUT J1 4 15 D1
VSS7
VSS21
7
21
GND
+5V
+5V J1 1
GND J1 2
1
+
2
C1
10uf
GND

FIG. 68B

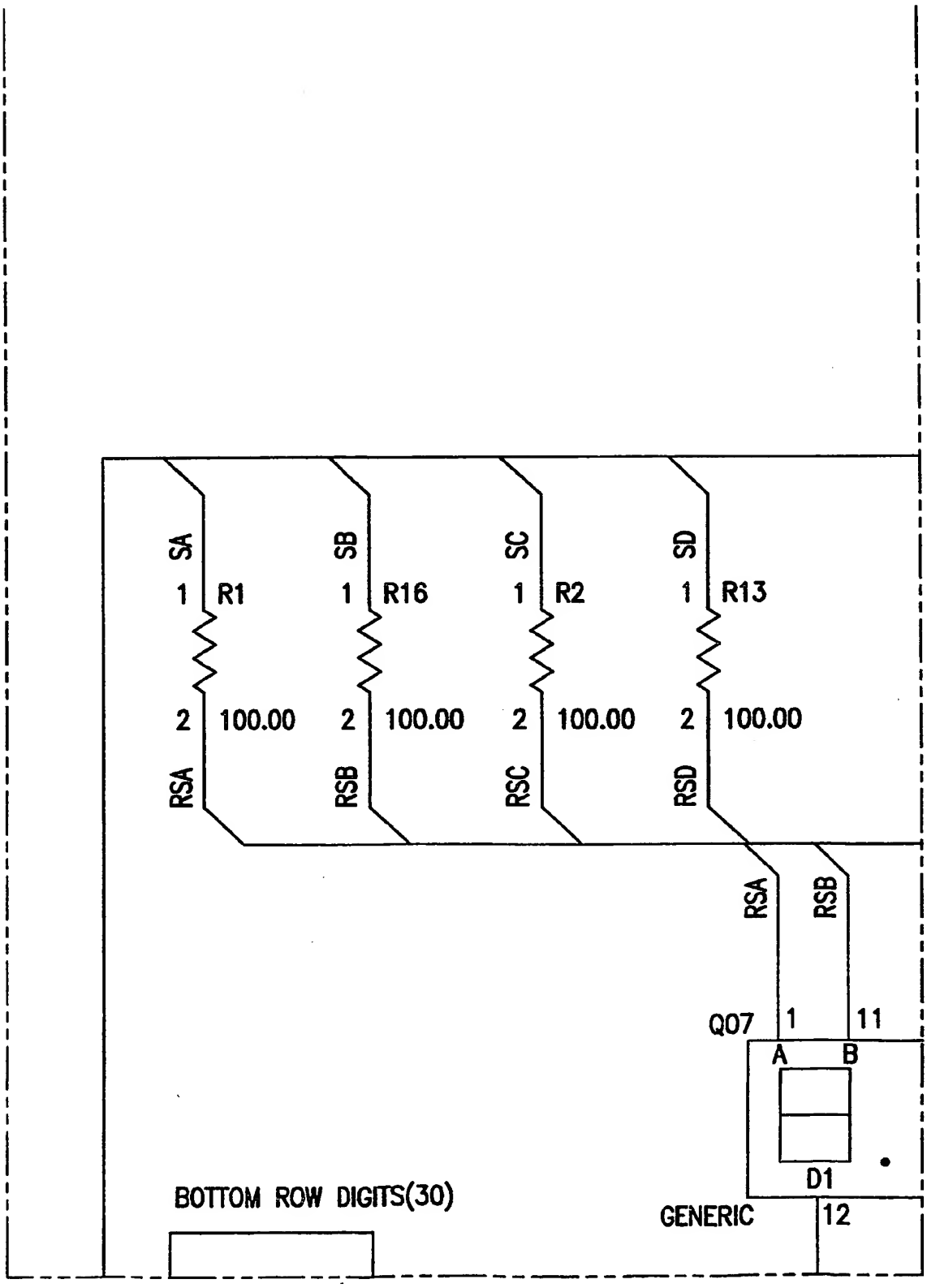

SA
1
R1
2
100.00
RSA
SB
1
R16
2
100.00
RSB
SC
1
R2
2
100.00
RSC
SD
1
R13
2
100.00
RSD
RSA
RSB
Q07
1
11
A
B
D1
BOTTOM ROW DIGITS(30)
GENERIC
12

FIG. 68C

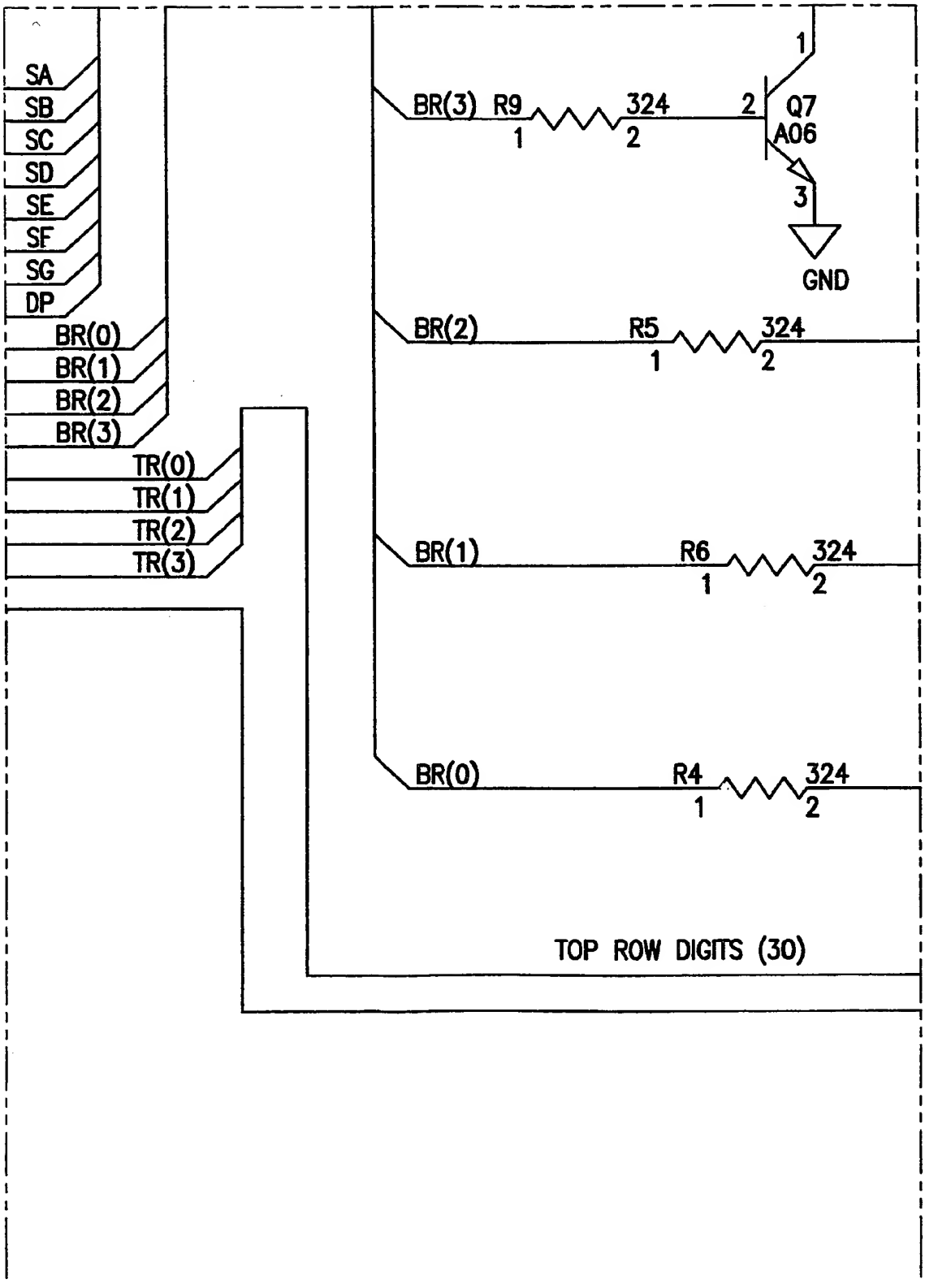

SA
SB
SC
SD
SE
SF
SG
DP
BR(0)
BR(1)
BR(2)
BR(3)
TR(0)
TR(1)
TR(2)
TR(3)
BR(3)
R9
1
324
2
1
2
Q7
A06
3
GND
BR(2)
R5
1
324
2
BR(1)
R6
1
324
2
BR(0)
R4
1
324
2
TOP ROW DIGITS (30)

FIG. 68D

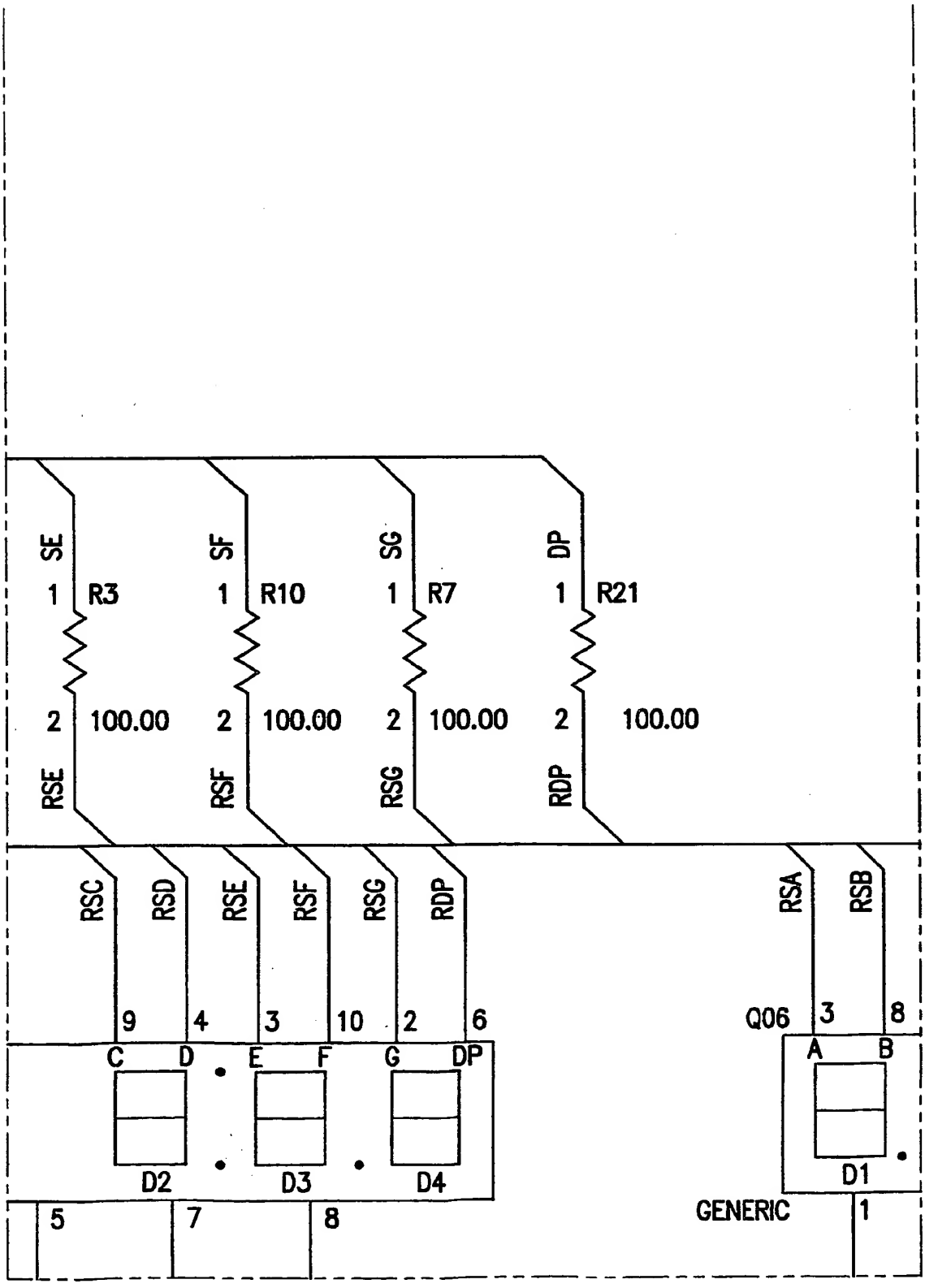

SE
1
R3
2
100.00
RSE
SF
1
R10
2
100.00
RSF
SG
1
R7
2
100.00
RSG
DP
1
R21
2
100.00
RDP
RSC
RSD
RSE
RSF
RSG
RDP
RSA
RSB
9
4
3
10
2
6
Q06
3
8
C
D
E
F
G
DP
A
B
D2
D3
D4
D1
5
7
8
GENERIC
1

FIG. 68E

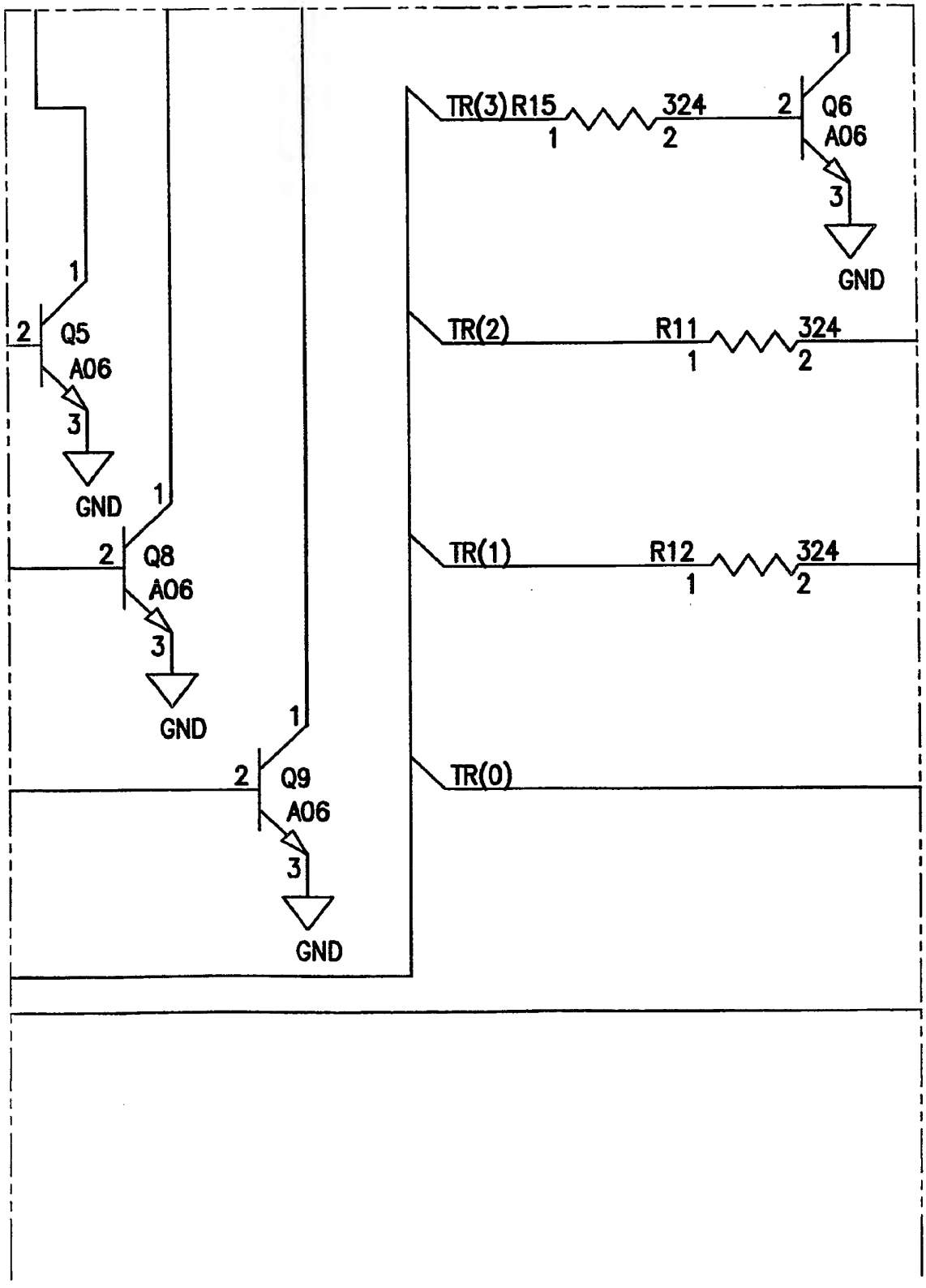

TR(3)
R15
324
Q6
A06
GND
TR(2)
R11
324
Q5
A06
GND
TR(1)
R12
324
Q8
A06
GND
TR(0)
Q9
A06
GND

FIG. 68F

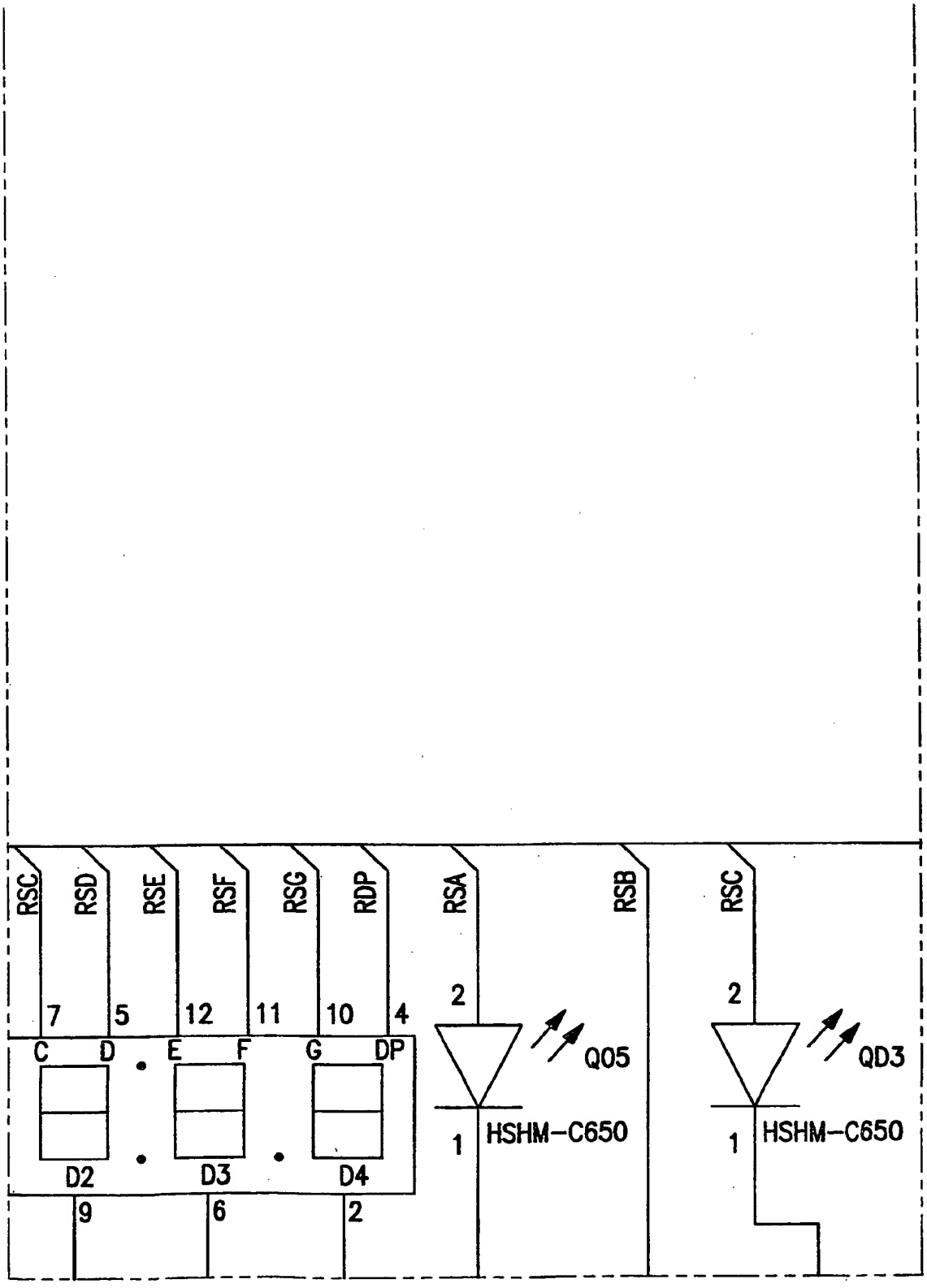

RSC
RSD
RSE
RSF
RSG
RDP
RSA
RSB
RSC
7
5
12
11
10
4
2
2
C
D
E
F
G
DP
Q05
QD3
D2
D3
D4
1
HSHM-C650
1
HSHM-C650
9
6
2

FIG. 68G

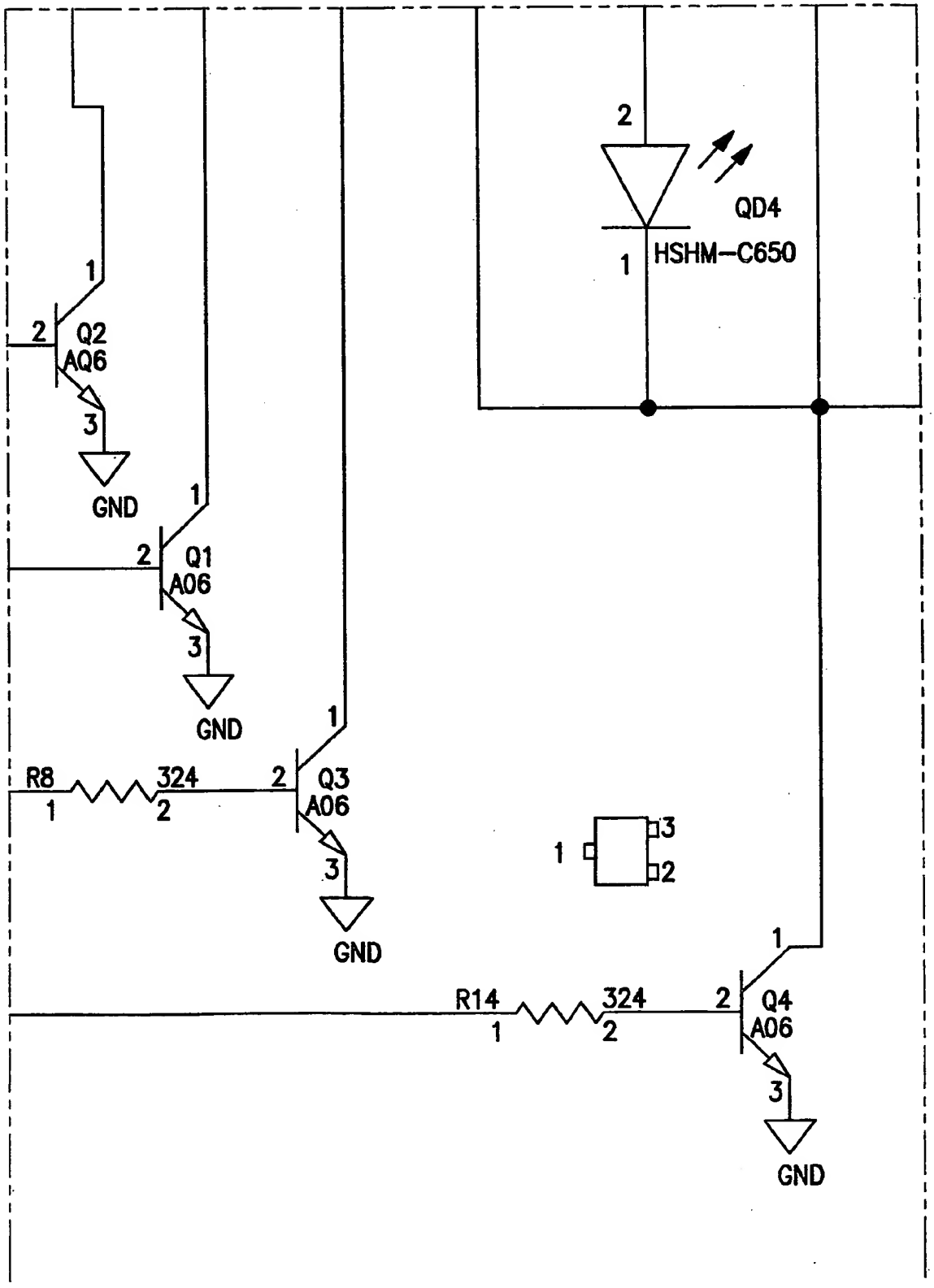

2
QD4
1
HSHM-C650
1
2
Q2
AQ6
3
GND
1
2
Q1
A06
3
GND
1
R8
1
324
2
2
Q3
A06
3
GND
1
3
2
1
R14
1
324
2
2
Q4
A06
3
GND

FIG. 68H

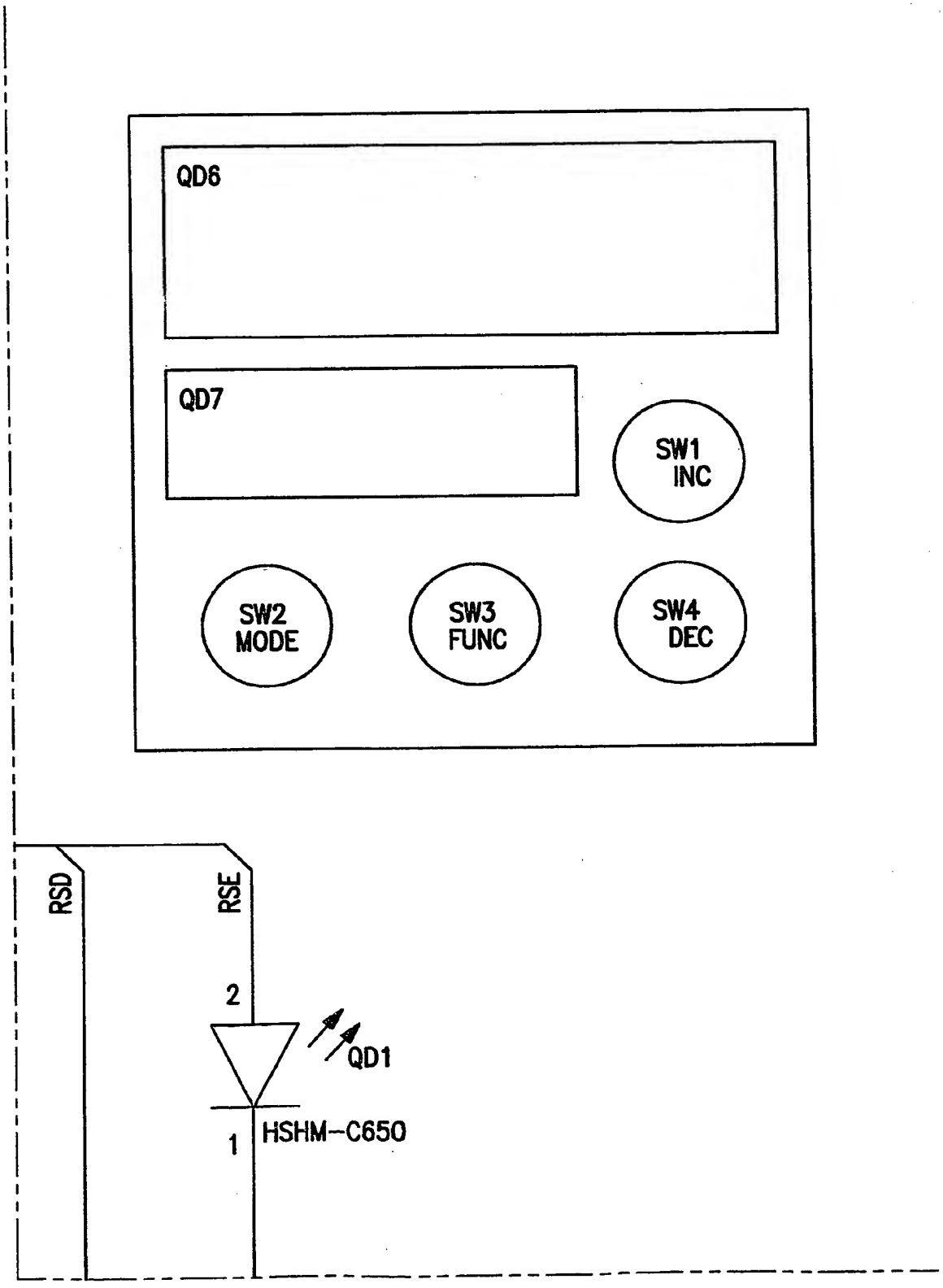

QD6
QD7
SW1
INC
SW2
MODE
SW3
FUNC
SW4
DEC
RSD
RSE
2
QD1
1
HSHM-C650

FIG. 681

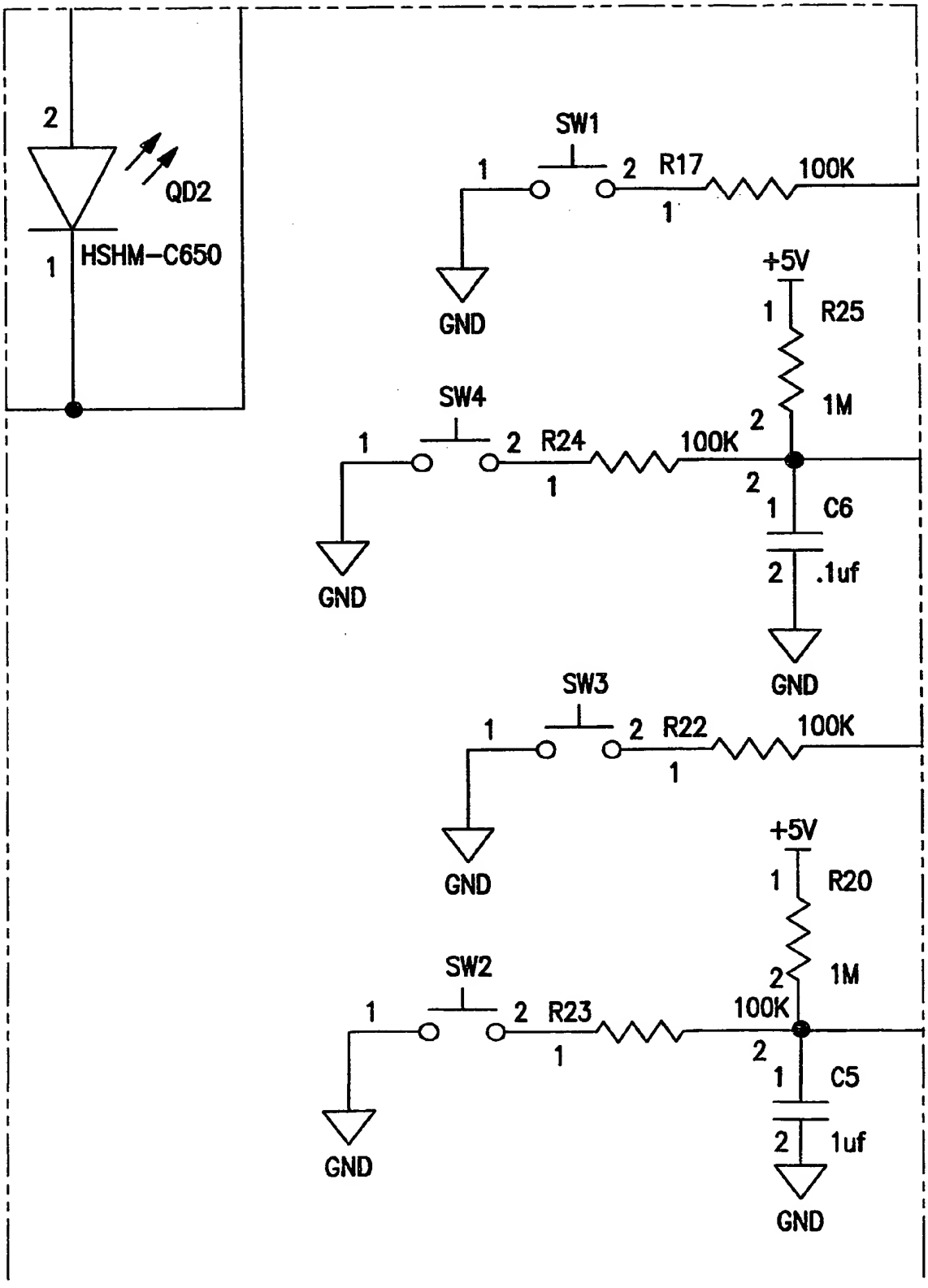

2
QD2
1
HSHM-C650
SW1
1
2
R17
100K
1
GND
+5V
1
R25
1M
2
SW4
1
2
R24
100K
1
2
1
C6
2
.1uf
GND
GND
SW3
1
2
R22
100K
1
GND
+5V
1
R20
2
1M
SW2
1
2
R23
100K
1
2
1
C5
2
1uf
GND
GND

FIG. 68J

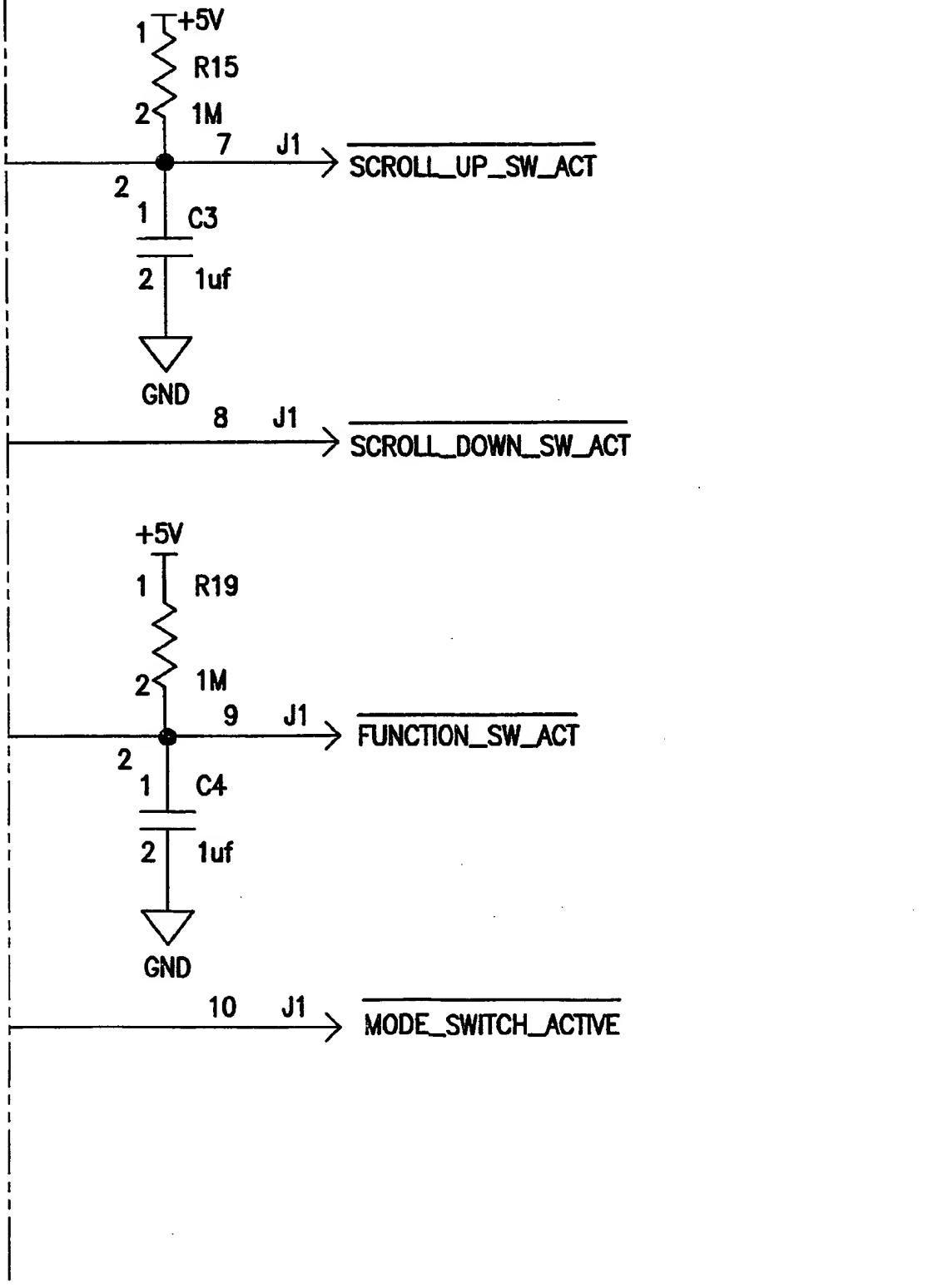

+5V
1
R15
2
1M
7
J1
SCROLL_UP_SW_ACT
2
1
C3
2
1uf
GND
8
J1
SCROLL_DOWN_SW_ACT
+5V
1
R19
2
1M
9
J1
FUNCTION_SW_ACT
2
1
C4
2
1uf
GND
10
J1
MODE_SWITCH_ACTIVE

FIG. 69

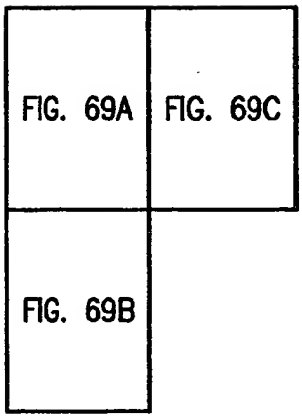


FIG. 69A

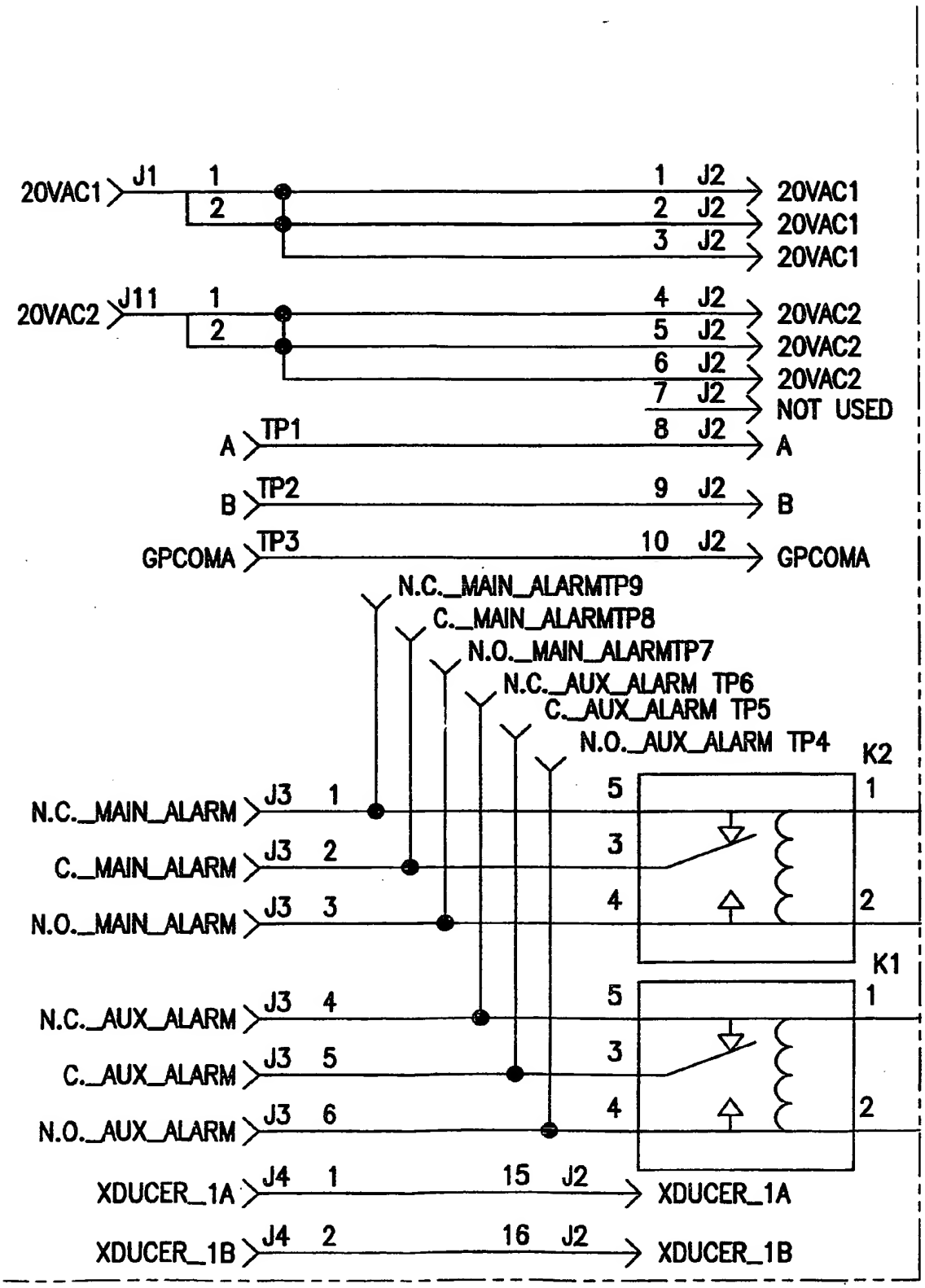

20VAC1
J1
1
2
1 J2
20VAC1
2 J2
20VAC1
3 J2
20VAC1
20VAC2
J11
1
2
4 J2
20VAC2
5 J2
20VAC2
6 J2
20VAC2
7 J2
NOT USED
A
TP1
8 J2
A
B
TP2
9 J2
B
GPCOMA
TP3
10 J2
GPCOMA
N.C._MAIN_ALARMTP9
C._MAIN_ALARMTP8
N.O._MAIN_ALARMTP7
N.C._AUX_ALARM TP6
C._AUX_ALARM TP5
N.O._AUX_ALARM TP4
K2
K1
N.C._MAIN_ALARM
J3 1
C._MAIN_ALARM
J3 2
N.O._MAIN_ALARM
J3 3
N.C._AUX_ALARM
J3 4
C._AUX_ALARM
J3 5
N.O._AUX_ALARM
J3 6
5
3
4
1
2
XDUCER_1A
J4 1
15 J2
XDUCER_1A
XDUCER_1B
J4 2
16 J2
XDUCER_1B

FIG. 69B

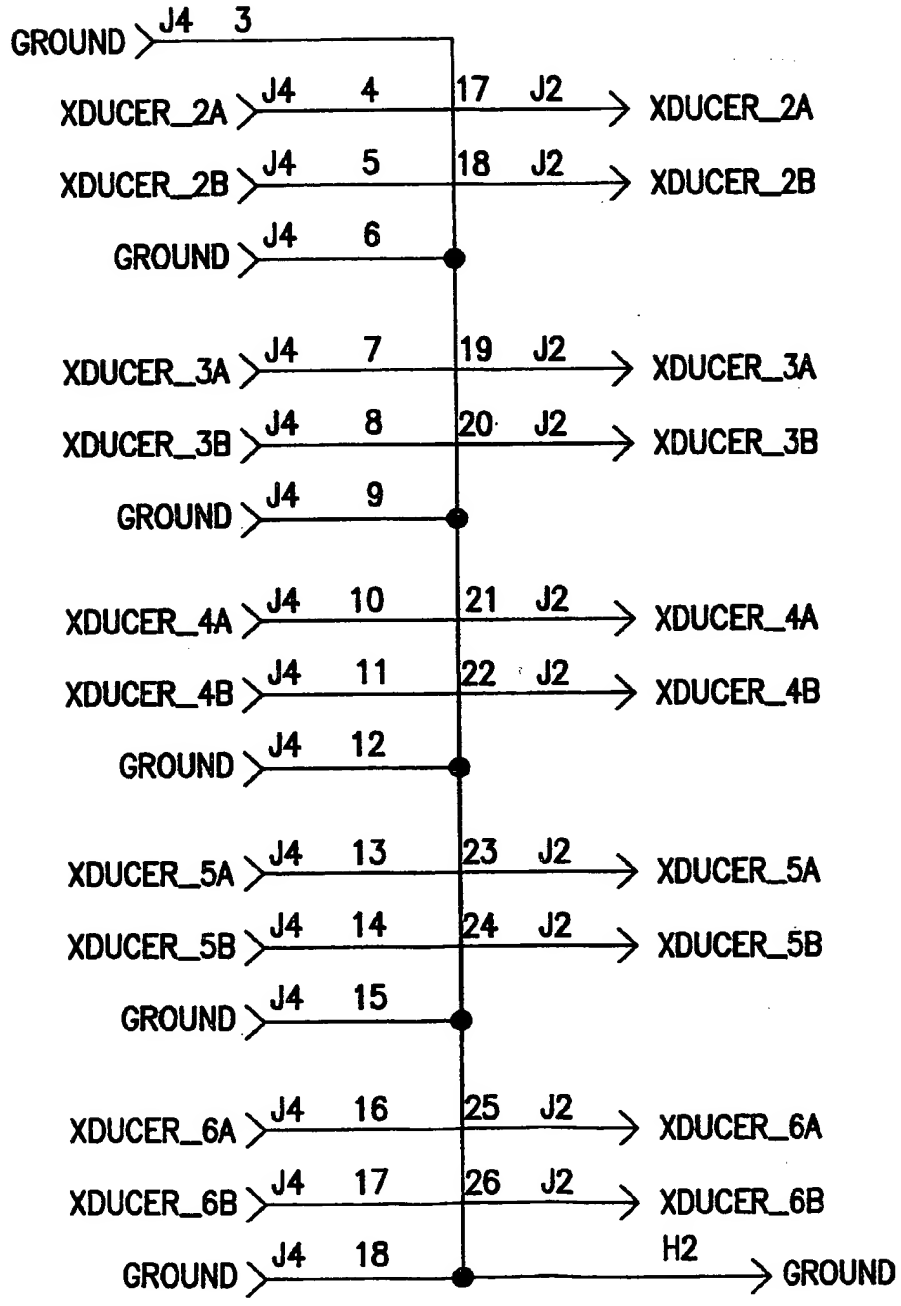

GROUND
J4 3
XDUCER_2A
J4 4
17 J2
XDUCER_2A
XDUCER_2B
J4 5
18 J2
XDUCER_2B
GROUND
J4 6
XDUCER_3A
J4 7
19 J2
XDUCER_3A
XDUCER_3B
J4 8
20 J2
XDUCER_3B
GROUND
J4 9
XDUCER_4A
J4 10
21 J2
XDUCER_4A
XDUCER_4B
J4 11
22 J2
XDUCER_4B
GROUND
J4 12
XDUCER_5A
J4 13
23 J2
XDUCER_5A
XDUCER_5B
J4 14
24 J2
XDUCER_5B
GROUND
J4 15
XDUCER_6A
J4 16
25 J2
XDUCER_6A
XDUCER_6B
J4 17
26 J2
XDUCER_6B
GROUND
J4 18
H2
GROUND

FIG. 69C

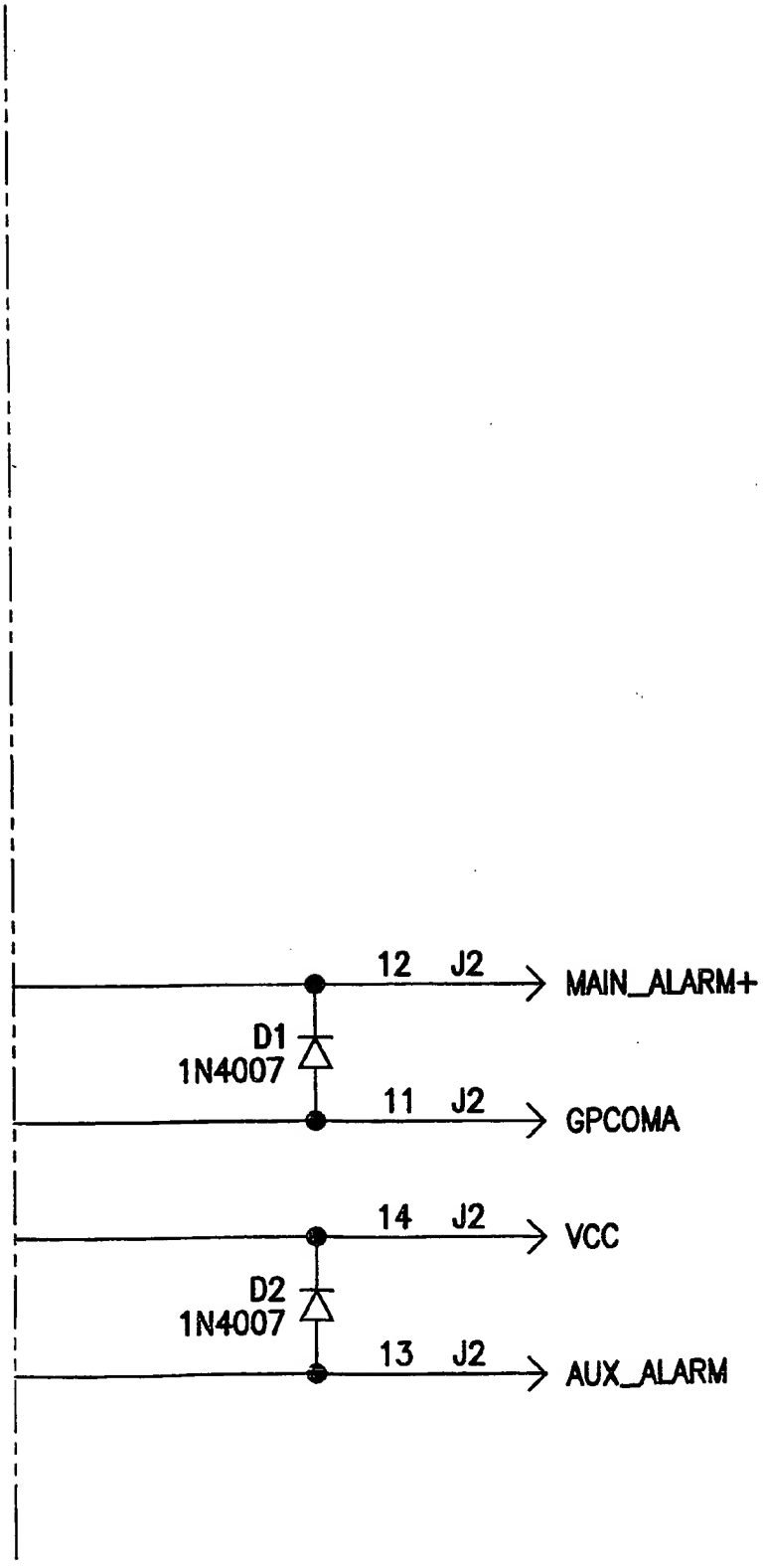

12 J2
MAIN_ALARM+
D1
1N4007
11 J2
GPCOMA
14 J2
VCC
D2
1N4007
13 J2
AUX_ALARM

FIG. 70

FIG. 70A	FIG. 70C	FIG. 70E	FIG. 70G	FIG. 70I
FIG. 70B	FIG. 70D	FIG. 70F	FIG. 70H	FIG.70J

FIG. 70A

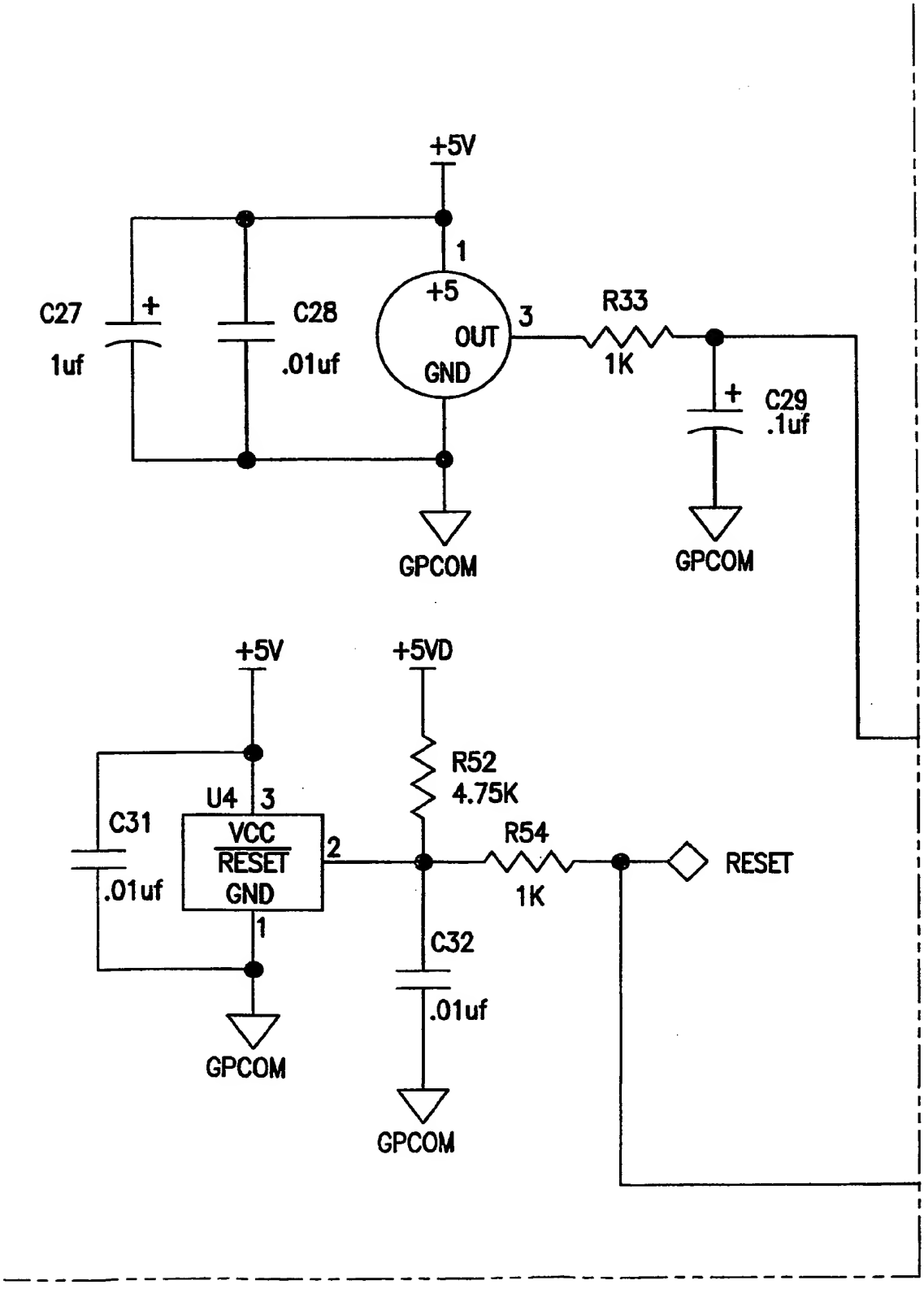

+5V
1
+5
OUT
GND
3
C27
+
1uf
C28
.01uf
R33
1K
+
C29
.1uf
GPCOM
GPCOM
+5V
+5VD
R52
4.75K
U4
3
VCC
RESET
GND
2
C31
.01uf
R54
1K
RESET
1
C32
.01uf
GPCOM
GPCOM

FIG. 70B

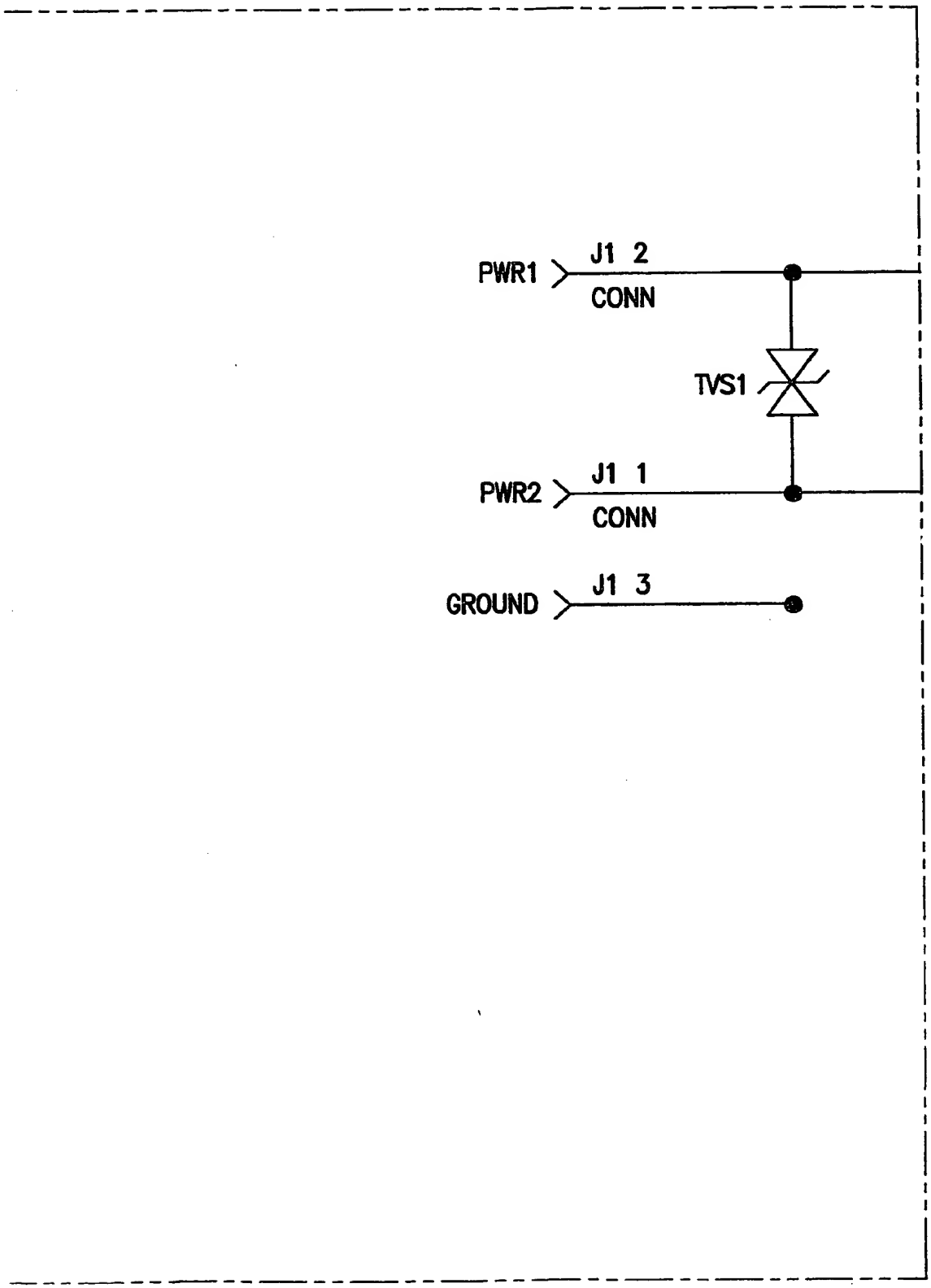


FIG. 70C

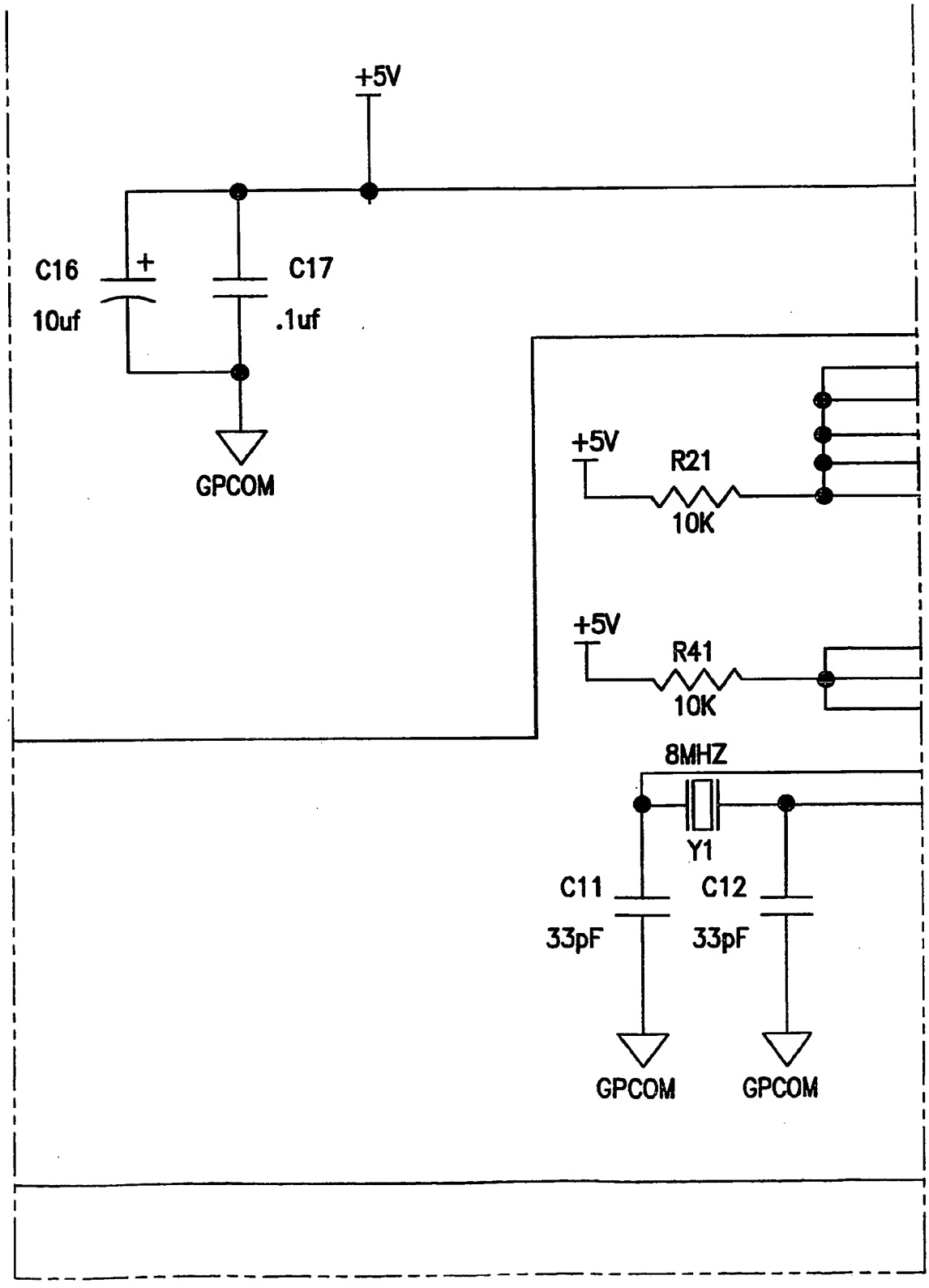

+5V
C16
+
10uf
C17
.1uf
GPCOM
+5V
R21
10K
+5V
R41
10K
8MHZ
Y1
C11
33pF
C12
33pF
GPCOM
GPCOM

FIG. 70D

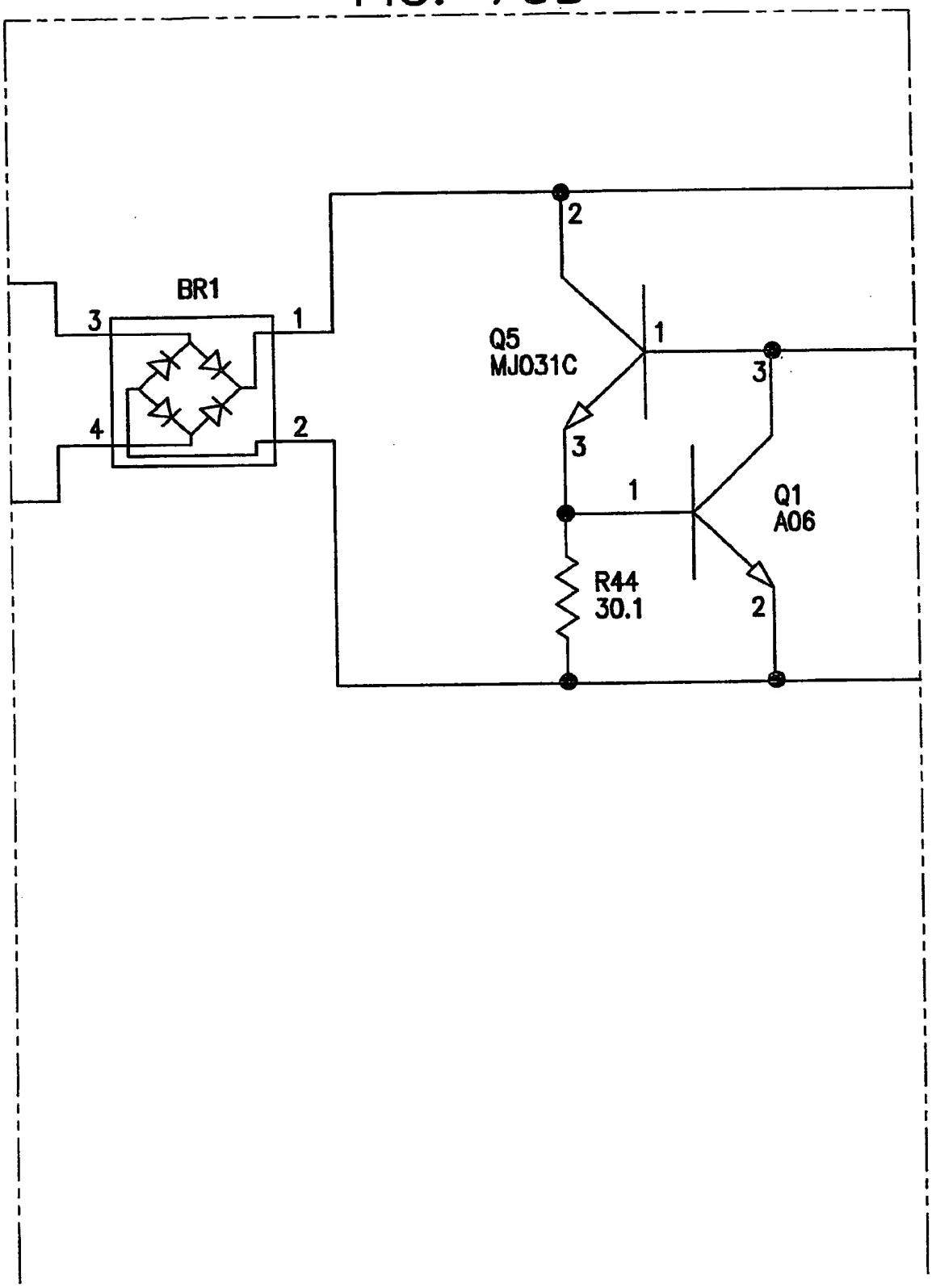


FIG. 70E

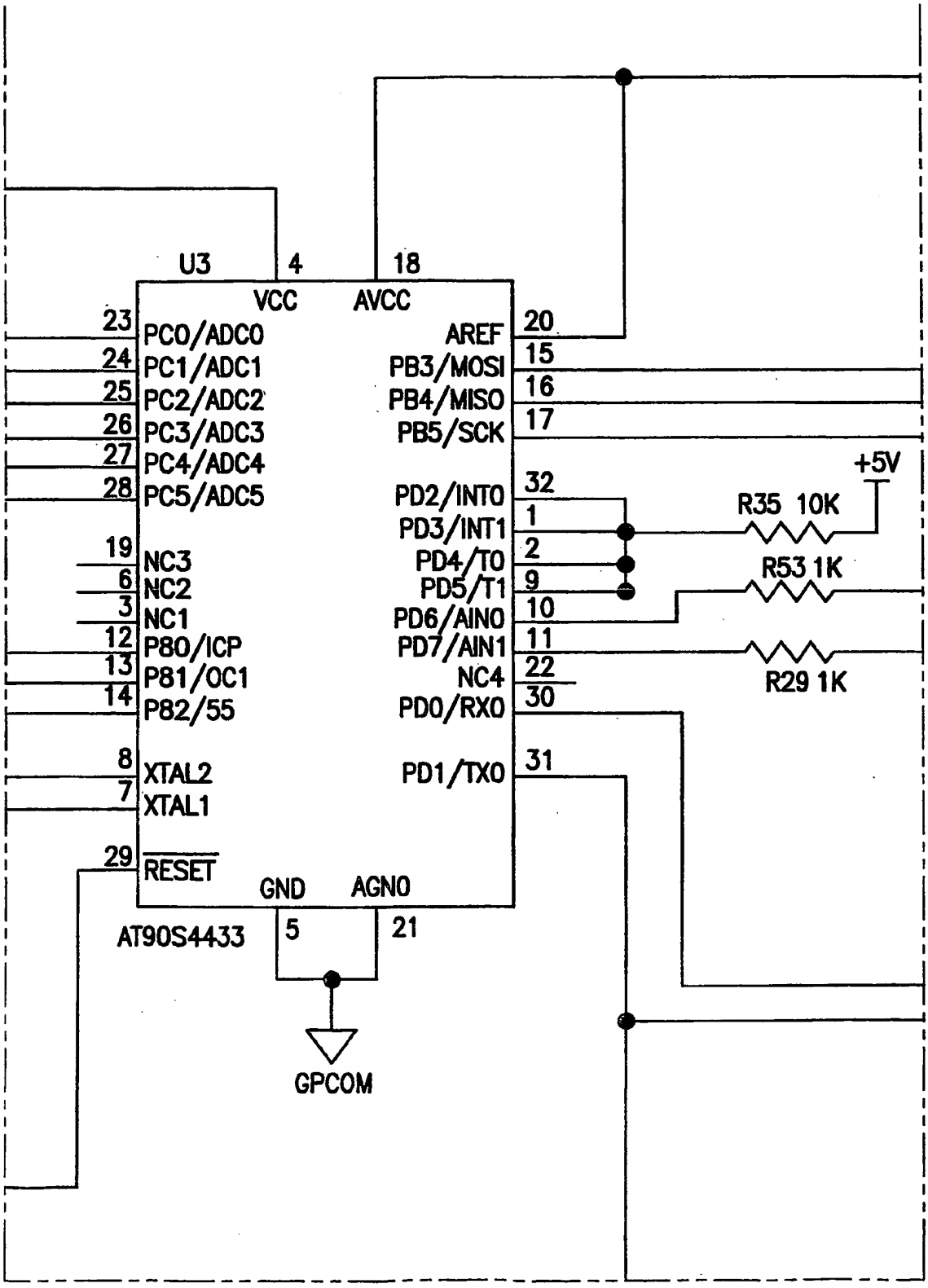

U3
4
VCC
18
AVCC
23
PC0/ADC0
24
PC1/ADC1
25
PC2/ADC2
26
PC3/ADC3
27
PC4/ADC4
28
PC5/ADC5
19
NC3
6
NC2
3
NC1
12
P80/ICP
13
P81/OC1
14
P82/55
8
XTAL2
7
XTAL1
29
RESET
GND
5
AGN0
21
AT90S4433
20
AREF
15
PB3/MOSI
16
PB4/MISO
17
PB5/SCK
32
PD2/INT0
1
PD3/INT1
2
PD4/T0
9
PD5/T1
10
PD6/AIN0
11
PD7/AIN1
22
NC4
30
PD0/RX0
31
PD1/TX0
+5V
R35 10K
R53 1K
R29 1K
GPCOM

FIG. 70F

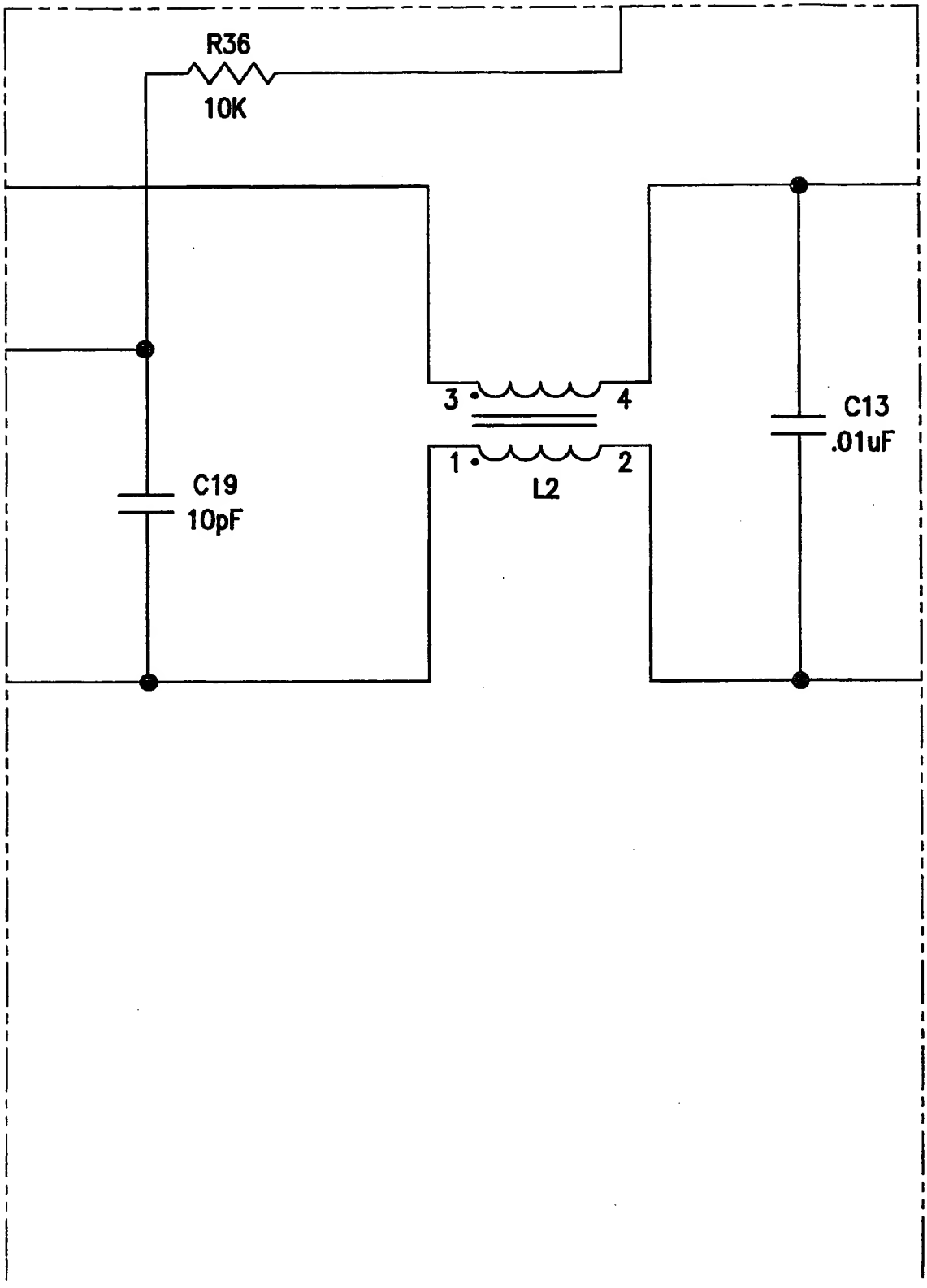


FIG. 70G

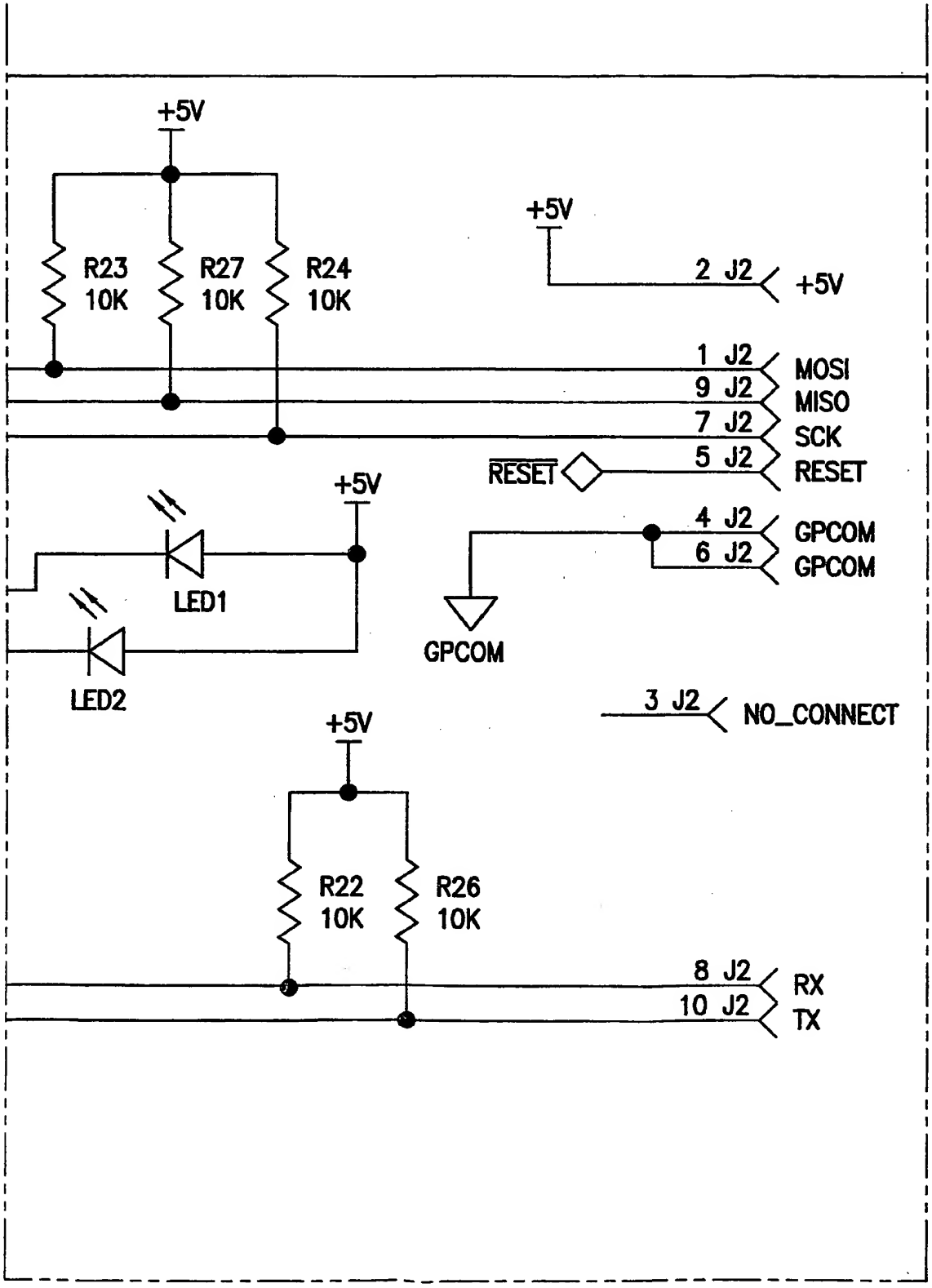

+5V
R23
10K
R27
10K
R24
10K
+5V
2 J2
+5V
1 J2
MOSI
9 J2
MISO
7 J2
SCK
RESET
5 J2
RESET
+5V
LED1
4 J2
GPCOM
6 J2
GPCOM
GPCOM
LED2
3 J2
NO_CONNECT
+5V
R22
10K
R26
10K
8 J2
RX
10 J2
TX

FIG. 70H

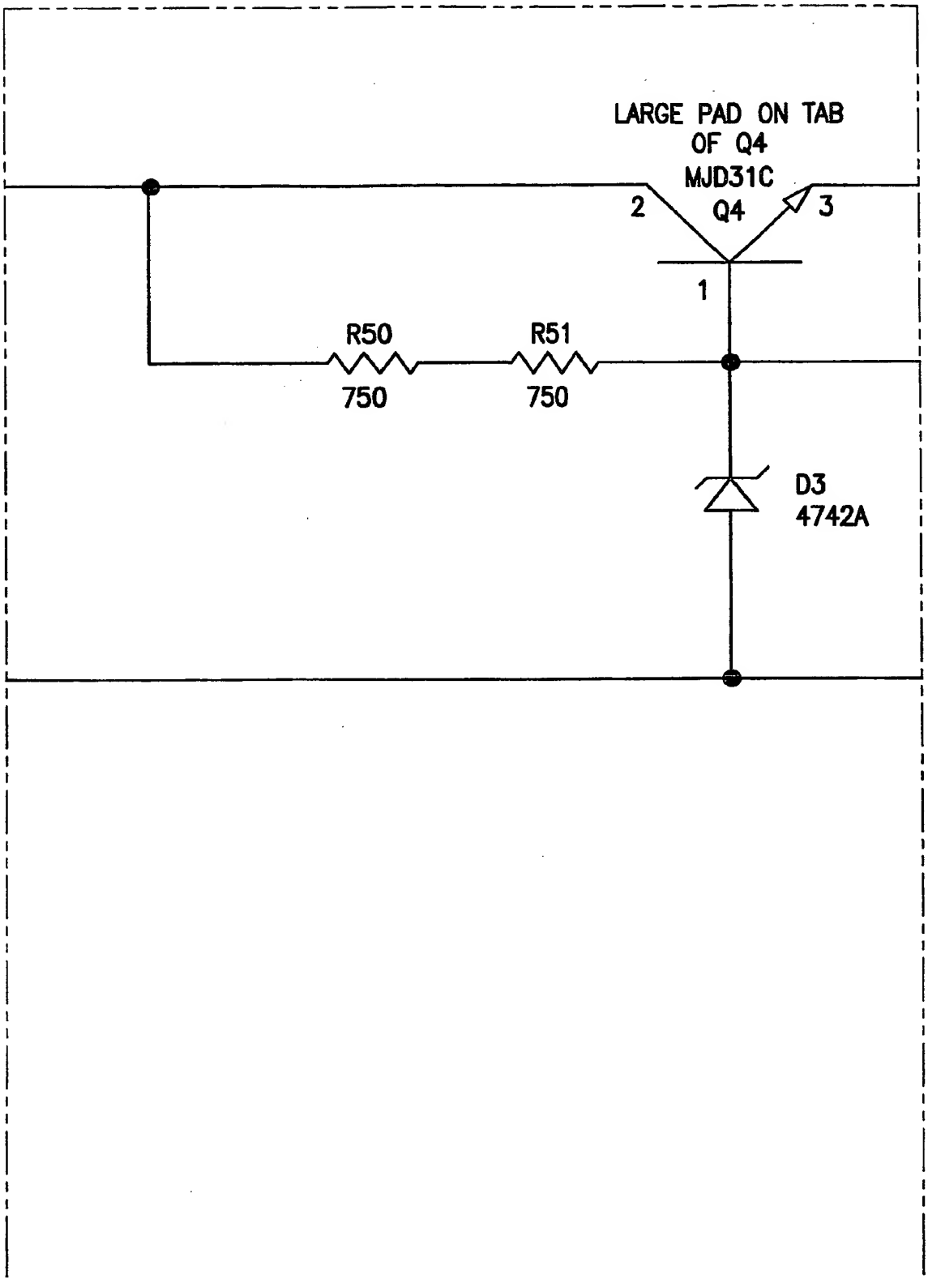


FIG. 701

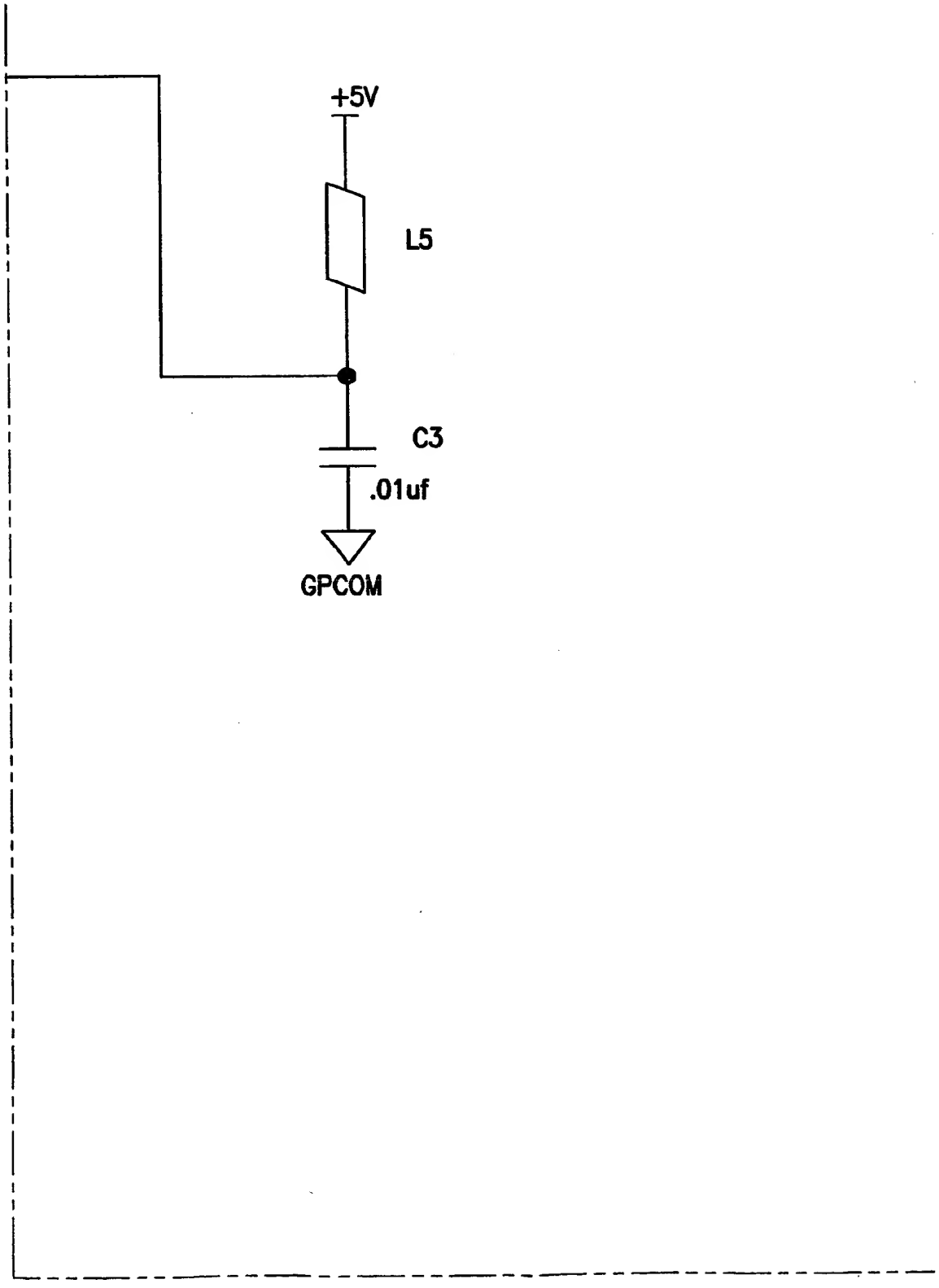


FIG. 70J

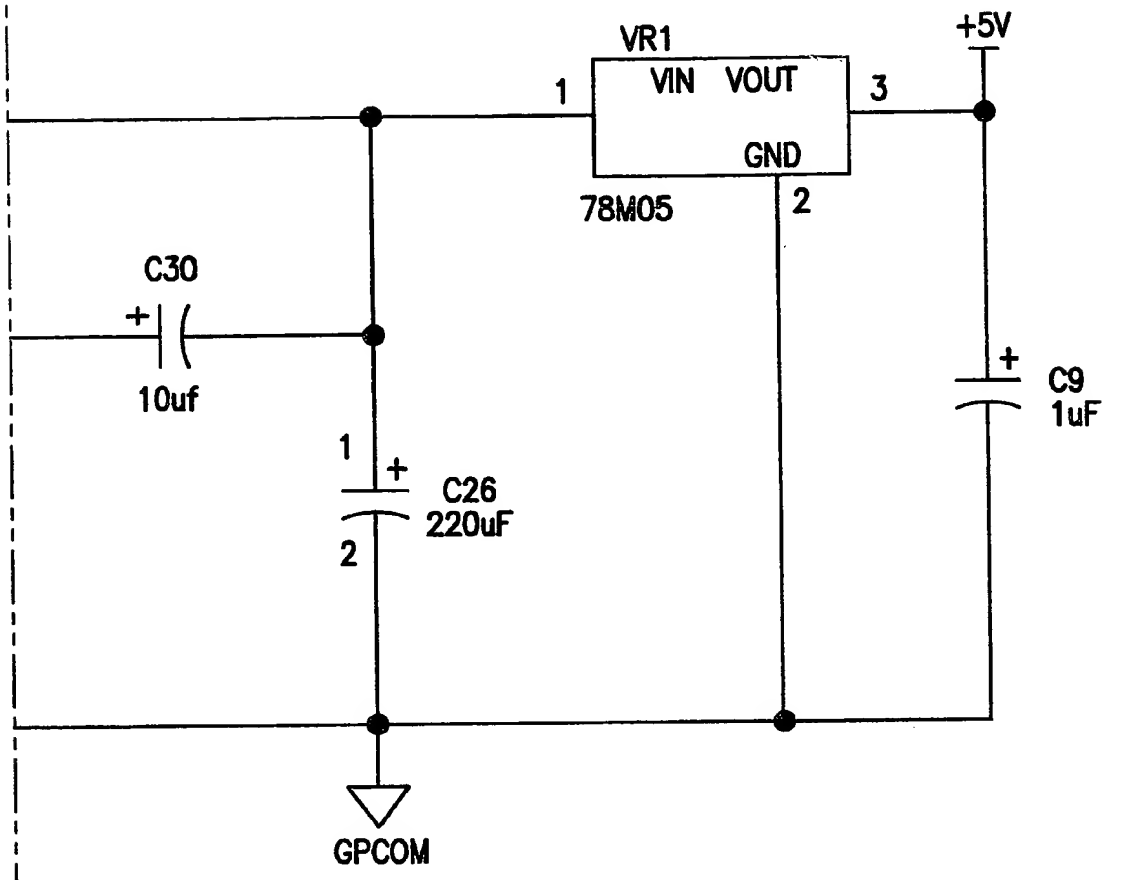


FIG. 71

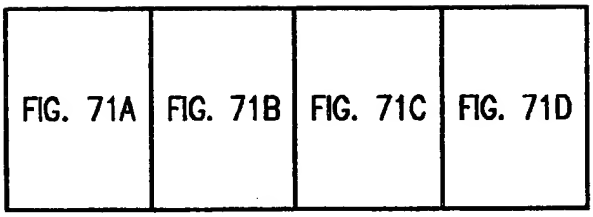


FIG. 71A

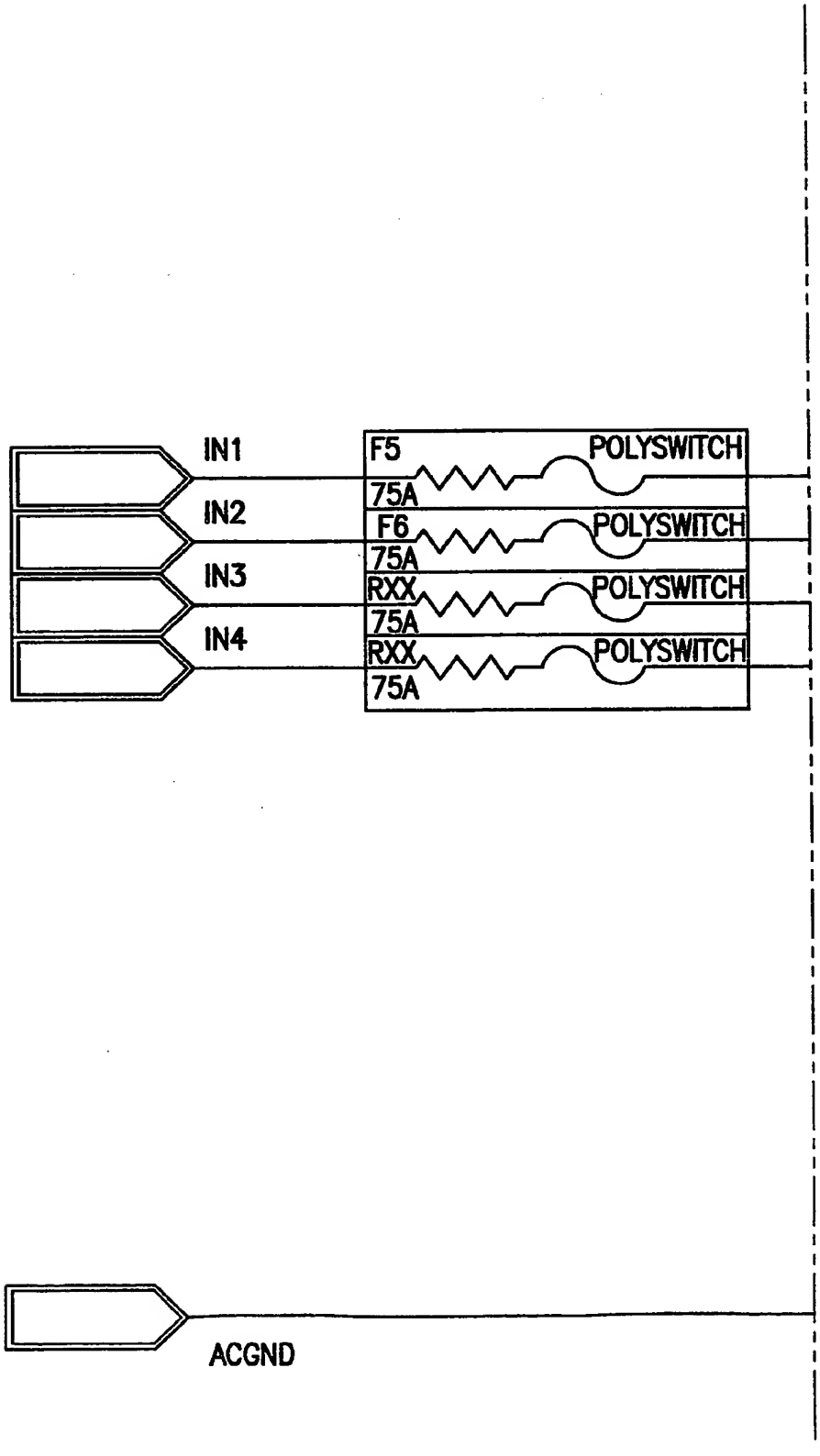

IN1
IN2
IN3
IN4
F5
75A
POLYSWITCH
F6
75A
POLYSWITCH
RXX
75A
POLYSWITCH
RXX
75A
POLYSWITCH
ACGND

FIG. 71B

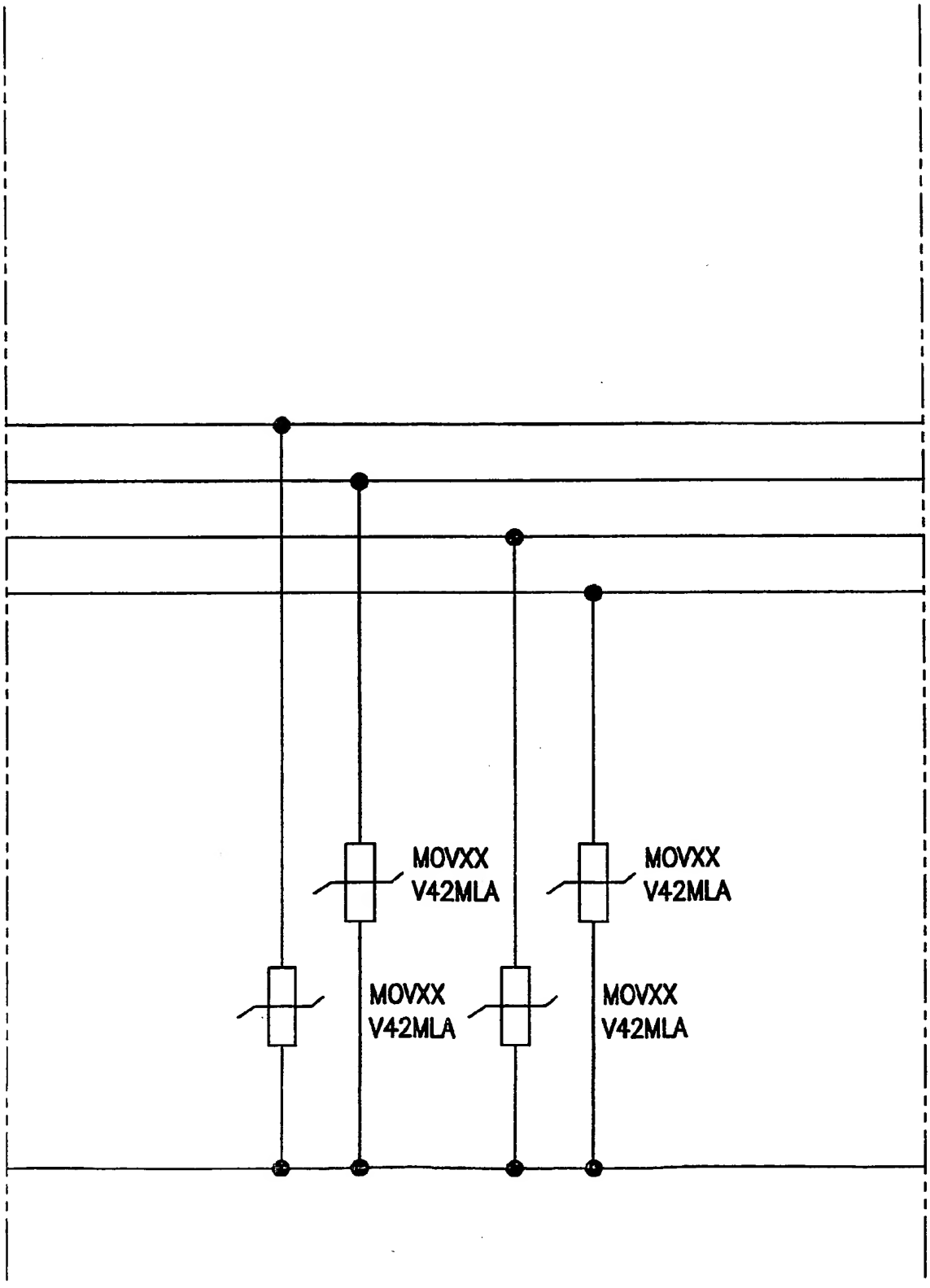


FIG. 71C

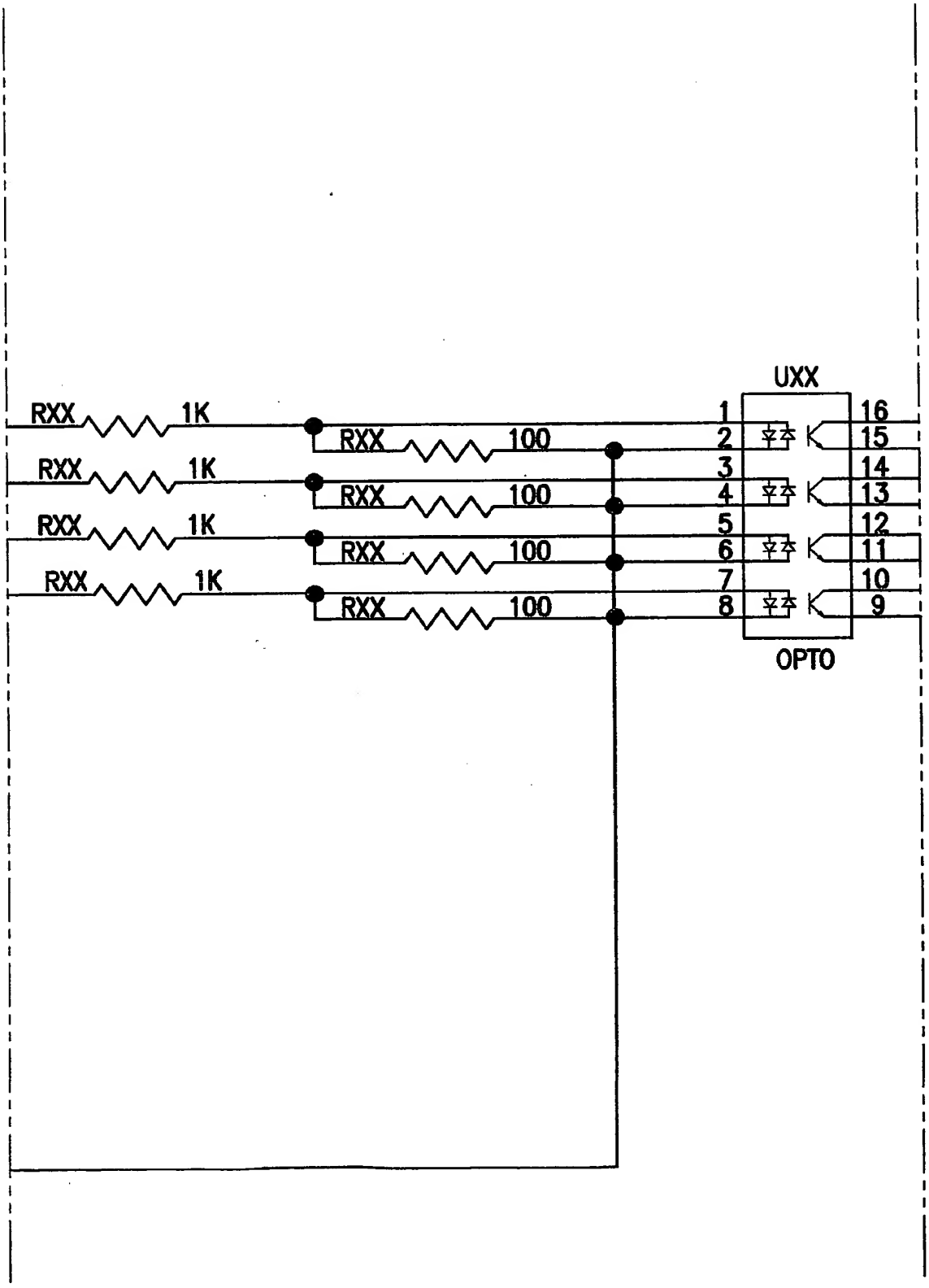
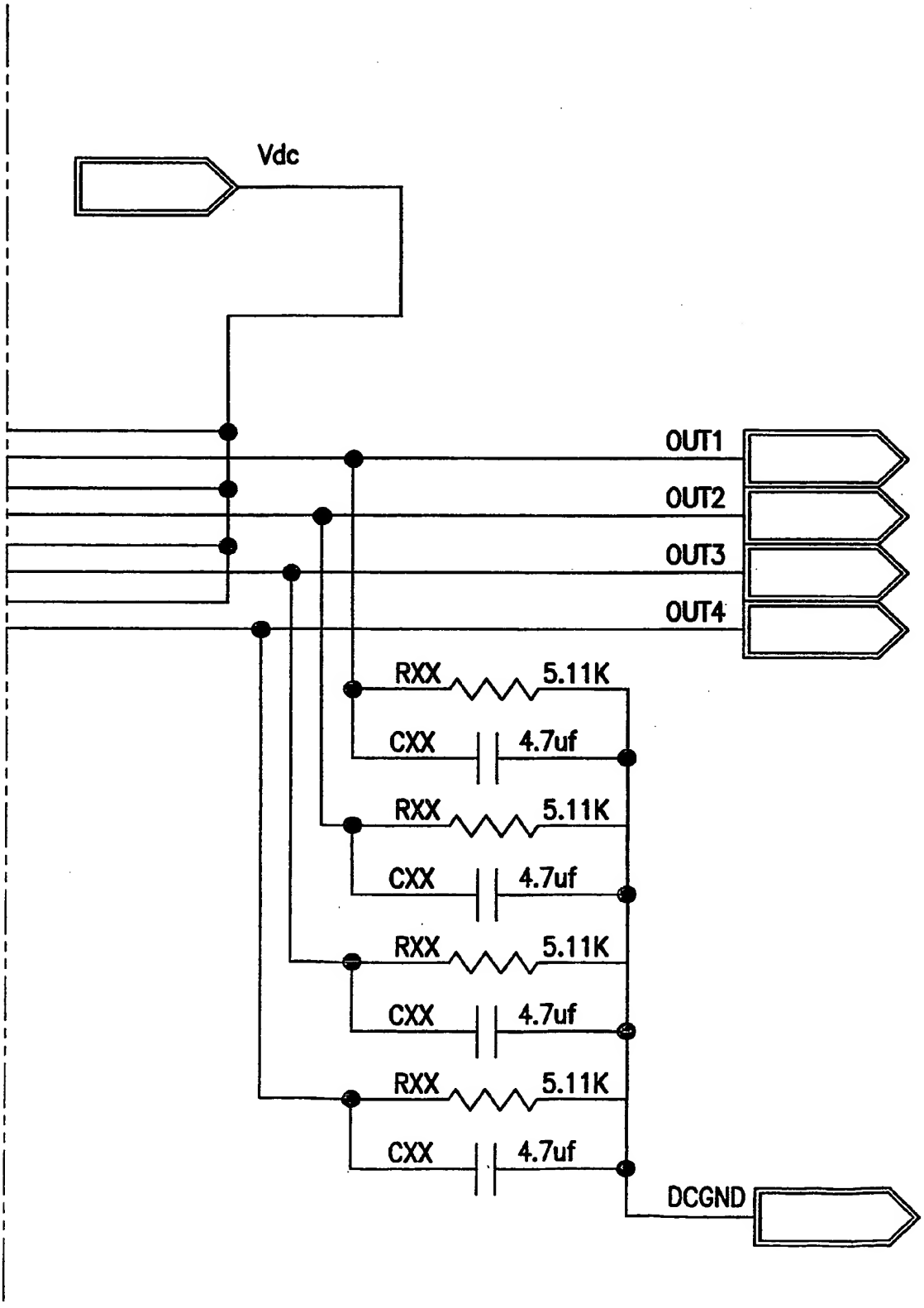


FIG. 71D


Vdc
OUT1
OUT2
OUT3
OUT4
RXX
5.11K
CXX
4.7uf
RXX
5.11K
CXX
4.7uf
RXX
5.11K
CXX
4.7uf
RXX
5.11K
CXX
4.7uf
DCGND